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Fritts Atop the World of Radio
 See page 19

Radio World

Vol 21, No 6 Radio's Best Read Newspaper March 19, 1997

State of Radio After Chancellor/Evergreen

by Lynn Meadows

DALLAS Perhaps the closest that ordinary mortals can come to understanding how it feels to merge Evergreen Media, Chancellor Broadcasting and the 10 Viacom radio properties would be to collect Boardwalk, Park Place, all the greens and all the reds in a game of Monopoly.

This is to hold, in other words, a full complement

of properties in the most desirable areas on the board, and to know that your competitors, understandably, are nervous.

More to come

Evergreen Chairman and Chief Executive Officer Scott Ginsburg said the new Chancellor Media Corp., with its 103 stations in 21 markets and an estimated weekly audience of 38 million, will be the largest "pure-play" radio group in the United States. The group's total 1996 estimated revenues of \$788 million would have placed it second only to CBS Radio, which had estimated revenues last year of \$1 billion, according to BIA Research (see Figure 1).

The combined group will own the top one or two revenue shares in seven of the top 10 markets, and 11 of the top 25. Still, Chancellor Media may have only a limited time to enjoy being king of the pure-play radio hill.

Steven Pruett, senior vice president of New York City-based investment bankers Communications Equity Associates, said he thinks this is the beginning of another wave of consolidation. He admitted he had not foreseen that entrepreneurial companies like Evergreen and Chancellor would merge this quickly.

Thanks to the chain of events this merger

See CHANCELLOR, page 8 ▶

Converge on NAB!

RW helps you survive the biggest NAB yet. Page 18.

Consolidation Update: NAB Meets With DOJ

by Matt Spangler

WASHINGTON Representatives of the Department of Justice and the National Association of Broadcasters have met as the department continues its investigations into potential antitrust violations by radio mergers and acquisitions.

Meanwhile, a key senator has warned the Federal Communications Commission not to overstep its bounds in its evaluations of these transactions.

See DOJ, page 15 ▶

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Commissioner Rachelle Chong: A 'Laissez-Faire' Regulator

WASHINGTON The bio for Federal Communications Commissioner Rachelle B. Chong calls her "an advocate of simple, pragmatic regulation." From her public disagreements with Chairman Reed E. Hundt over his belief that the FCC has jurisdiction to regulate liquor advertising, to her belief that the commission should limit its involvement in regulating emerging technologies, she is a product of the Reagan-era "laissez faire" approach to government, a lieutenant in the Republican Revolution, though she might publicly deny the affiliation.

At the same time that she appears to be a fierce advocate of the First Amendment, however, she firmly believes in the public interest commitment of broadcasters, having been outspoken on such issues as TV ratings and children's educational television (she will, in fact, deliver the opening remarks of the children's television session at the Broadcasters' Law & Regulation Conference at this year's NAB).

Chong came to the commission as a



Federal Communications Commissioner Rachelle Chong

private sector telecommunications lawyer in San Francisco. She was appointed to her Republican seat by President Clinton in 1994, and three years later she faces detractors — perhaps even the chairman — who want

See CHONG, page 43 ▶

NEWSWATCH

Westinghouse: New Name, No Symbol

NEW YORK To no one's surprise, Westinghouse Electric Corp. has chosen "CBS Corporation" as the name of the broadcast entity formed through its merger with Infinity Broadcasting. Divisions of the company will still be CBS Television, CBS Radio and CBS Cable. Westinghouse Chairman and CEO Michael H. Jordan said the public advised the company to "keep the name that has been known as a leader of the broadcasting industry from its earliest days."

CBS Corp. will have its own board of directors, officers and publicly traded

stock separate from those of Westinghouse Electric Company, the industrial arm. An important item of business to be considered, however, is what CBS Corp. will use for a symbol on the stock exchange; "CBS" is being used by Cort Business Services.

Meanwhile, Westinghouse purchased Gaylord Entertainment's two major cable networks, TNN (The Nashville Network) and CMT (Country Music Television), last month. TNNR (TNN Radio) syndicates "The Nashville Record Review with Crook & Chase," the weekly country music countdown show. Jordan said the transaction will make CBS Radio and the networks "key players in country music and country lifestyle businesses."

Jazz Jock Claims Innocence of Manslaughter

ALEXANDRIA, Va. WJZW(FM) disk jockey Gregory P. Fitzgerald was indicted on charges of involuntary manslaughter in the November death of a man who died after the two had a fistfight.

Fitzgerald had been the afternoon drive man at the soft jazz station since 1993.

The altercation was with William F. Deal, president of the National Electric Sign Association, and over Fitzgerald's girlfriend, with whom he thought Deal was having an affair. Fitzgerald claimed that he confronted Deal and was attacked by him. Deal complained of dizziness the next day and, after a blood clot was

removed from his head on Nov. 5, he died on Nov. 11.

Fitzgerald claimed that the fight was quick and that he did not know the seriousness of Deal's injuries.

Bob Battle, Fitzgerald's attorney, said his client would plead not guilty. "If you defend yourself against someone, that's not a crime," Battle said. He expected the trial would be in late March or early April and would be brief.

WJZW General Manager Charlie Ochs was not sure at press time if Fitzgerald would be brought back on the air as he faces trial. "What we're trying to do right now is whatever is the right thing to do," Ochs said.

See NEWSWATCH, page 3 ▶

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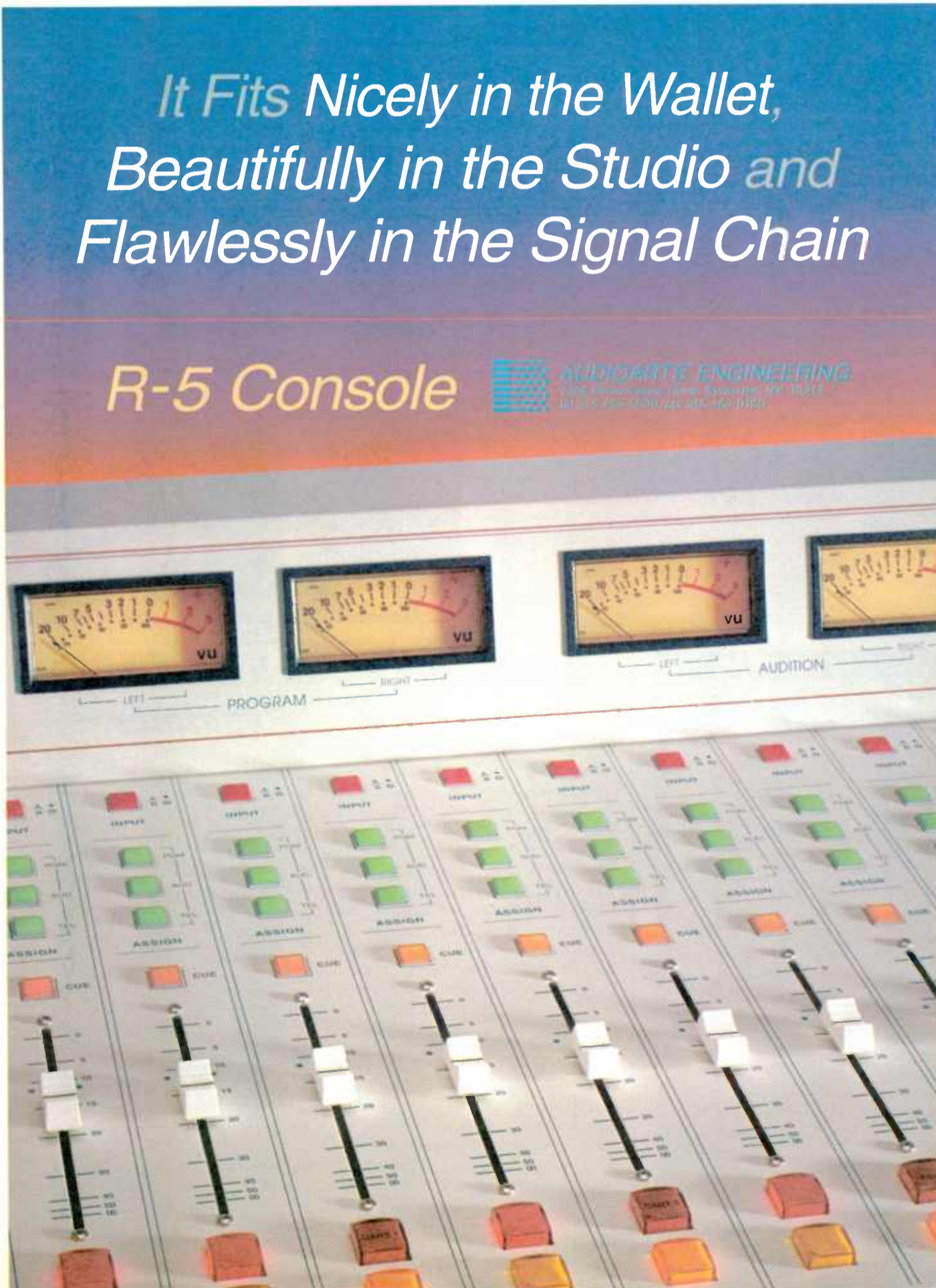
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Circle (2) On Reader Service Card

Radio, Inside the Beltway

A Roundup of News Affecting Radio From the Nation's Capital

by Matt Spangler

Clinton Wants Airtime and Money from Broadcasters

In his State of the Union address, President Clinton urged Congress to pass a bipartisan campaign finance reform bill. He set a deadline of July 4 for passage of the McCain-Feingold bill, which proposes giving free airtime to broadcasters as part of its campaign finance reform measures.

Meanwhile, the President's recent budget proposal calls for \$36.1 million to be collected through spectrum auctions over a five-year period (1998-2002). In a press conference, Sen. John McCain, R-Ariz., chairman of the Senate Committee on Commerce, Science and Transportation, said the committee opposes spectrum auctions. Nonetheless, he said, it must adhere to the president's plan to balance the budget.

McCain said that the president's budget "didn't specify whose ox would be gored" if the funds were not raised. One alternative is to hit broadcasters with a "trigger tax" to compensate for any funds not raised by the auctions.

A spokesman for the National Association of Broadcasters said that if a

trigger tax were implemented, the impact would be felt in the digital television realm. "Broadcasters are already prepared to spend billions for the transition to digital television," he said. "We cannot support the administration's trigger tax proposal, because it would only delay the next generation of universal, over-the-air TV to American consumers."

Who's In and Out at the FCC

The question of who will be nominated to and who will remain at the Federal Communications Commission is starting to seem like a real whodunit. At press time there were no official nominees to fill the slot left vacant by the departure of Commissioner Andrew Barrett on April 1, 1996, and the one that will become available when Commissioner James H. Quello's term expires in May. There has, however, been plenty of scuttlebutt.

Sen. John McCain said in a press conference last month that Michael Powell, chief of staff of the Department of Justice's antitrust division and the son of retired Gen. Colin Powell, was a strong favorite to replace Republican Barrett. FCC General Counsel Bill Kennard is said to be the favorite to fill Democrat

Quello's position.

Senate Majority Leader Trent Lott, R-Miss., reportedly backs House Commerce Committee Chief Economist Harold Furchtgott-Roth as the Republican nominee.

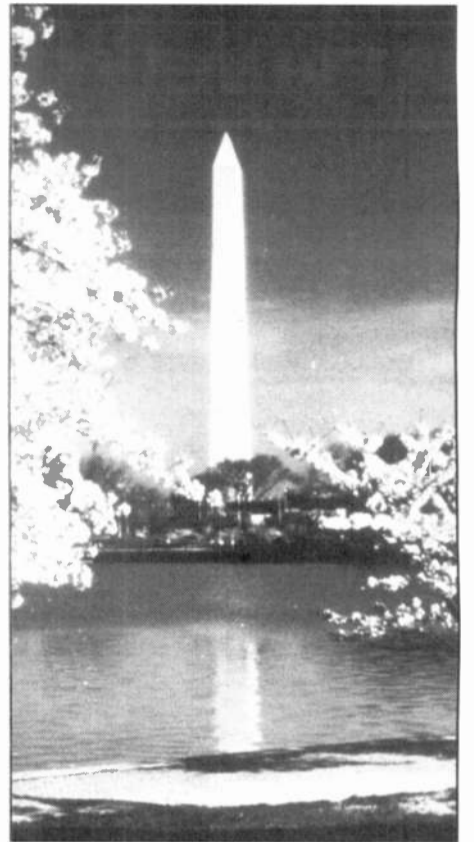
FCC Common Carrier Bureau Chief Regina Keeney had been the White House's Democratic nominee, but she withdrew her name when Congress came back into session this year because she did not feel that she could keep up with the demands of the job and spend enough time with her children.

Meanwhile, McCain also suggested that current Commissioner Rachelle Chong, whose current term expires June 30, should step down. National Association of Broadcasters President Edward O. Fritts came out in support of Chong: "Her refreshing independence — coupled with a steadfast belief in the public interest — have been the hallmarks of her tenure," he stated. Chong said she plans to seek renomination from the White House.

Rumors continue to surface that FCC Chairman Reed E. Hundt may leave the commission soon.

Daley's Job: Clean Up Commerce

The White House turned to a Chicago-area attorney with a familiar political name to help bring a gloss to the Commerce Department. William Daley was sworn in



as the new Secretary of Commerce last month. He has served as a special counsel to President Clinton on NAFTA.

Referring to ethics charges that the department faced under Ron Brown's tenure as secretary, Sen. John McCain said, "Mr. Daley will face a monumental task in restoring the reputation of the Department of Commerce. I feel confident, nonetheless, that he is capable of this responsibility."

NEWSWATCH

▶ NEWSWATCH, continued from page 2

Parachutist Hung Up On S.C. Station

LAURENS, S.C. You don't get this kind of call every day. On a recent Friday afternoon, Jim Graham, chief engineer of WSSL-FM, received a call that an unauthorized person was on the station's property.

More precisely, the man was stuck on one of the guy wires of the station's tower — approximately 350 feet from the ground.

Graham hurried out to the site to provide whatever help he could to the rescue effort. A man was suspended from the third guy wire up. He had attempted to parachute off the 1,200-foot tower by jumping from around the 500-foot level.

Rescue workers from Laurens County and Greenville County worked for five hours to disentangle the pendent man. When they finally got him down, police charged him with trespassing and treated him to a short respite at the local lock-up.

WSSL remained on the air throughout the episode. "I was just glad they got him down safely," said Graham.

Radio World Co-sponsors Miami Expo

MIAMI The second annual World of Radio & TV Show/Expo for Latin America will be held here, Aug. 5-7, at the Miami Beach Convention Center, organized by the Latin America Communications Network Inc. (LACN) and co-sponsored by Radio World and TV Technology.

The exhibition will offer the latest in audio and video equipment technology, along with radio programming and services, to radio and television broadcasters and video professionals.

The show also is being directed at the Florida market.

A concurrent technical conference will address issues ranging from digital audio production and transmission for radio to new developments in digital non-linear editing and new ENG tape formats for TV broadcasters and video professionals.

For information about registration, contact the Latin America Communications Network Inc. at (305) 638-5005. For information about exhibit space, contact Alan Carter, Latin America regional manager, at Radio World and TV Technology, at (703) 998-7600.

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Jordan: Positive Vibes for Radio

WASHINGTON Aah, it is that wonderful time of year known throughout our business as "NAB time." There isn't anything else quite like it.

As you peruse through this, our NAB preview issue, keep in mind that between now and when you actually arrive in Las Vegas, much more will have been added to the program and the exhibit halls.

Once again, we will be covering the convention from A to Z as the authors of the *NAB Daily News*. For your enjoyment, if you are attending the show, we also will be printing an afternoon edition that will feature completely hot-off-the-press live events and news from Vegas. We will have a booth on the floor, No. 2400. Please come by and tell our boss how much you love **RW!!!** He loves hearing that (and so do I!). Or just come by and say hello — he really likes that too.

'Cool Stuff' time again

Mostly, though, I am looking forward to walking the floor and looking for those "Cool Stuff Award" winners for 1997. I think that has become one of my favorite parts of the whole show.

And speaking of cool, one of the benefits of working on the Daily is the ability to chat with people that I don't normally have an opportunity to see. Yesterday, I

drove up to Pittsburgh to interview Westinghouse Electric Corp. Chairman and CEO Michael Jordan. He will be the opening keynote speaker for the all-industry session at the NAB. My interview with him is for the *NAB Daily News*, and I will run, in an upcoming **RW** issue, some excerpts from it that pertain to radio.

I did want to share some of his insights with you now, though. Namely, two things. One, he is a man who likes radio and sees radio as an extremely important part of the Westinghouse structure. I asked him whether we would see CBS Corp. continue on the acquisition trail. He basically said yes.

"In radio, certainly we are the world leader and it's a very important part of our business — over half our profits come from radio. I expect that to continue to grow."

He went on to say that most of the big pieces were in place in the top markets, but that we would see CBS moving to "fill in" any gaps in major markets.

Of course, DAB

Now, I wasn't about to walk out of that office without asking him about DAB. Let's face it, I've said some pretty strong things about it on this very page and I was looking for him to assuage



by Lucia Cobo

some of my fears about being out on a limb and all that with IBOC. His comments were very reassuring.

"Well I think there are proposals of other systems that would require the implementation of a completely new spectrum which is not practical in this marketplace. ... Therefore the USADR proposal of the in-band radio is the most practical. We feel that the project languished for a period of time because it did not have the technology leadership, and so we've sort of taken the lead in that and it's something we know a little something about, quite frankly.

"We think we have a viable proposal that will be demonstrated over the next one to two years. We have to get the confidence of the industry, the manufacturers, the FCC ... that we do have a viable proposition to bring digital to the marketplace. Over time we think that the transition to digital will take place in radio as it has in every other communication and electronic media, but we think it is a ways off."

So there it is, straight from the big man himself — Westinghouse is committed to IBOC from the top of the corporation. And not only that, but the man was

incredibly comfortable talking about it and knew up-to-the-minute what I was asking him about as it pertained to IBOC.

Separately important

Our cover artwork for this year was designed by **RW** Production Manager Heather Nicholson. Look closely at the old mic in the foreground — it was photographed by our own Al Peterson at the Newseum in Arlington, Va., and it is the very one that President Franklin Delano Roosevelt used for his "Fireside Chats" on the radio 60 years ago. Officially, it is a Western Electric, carbon button mic.

The Newseum is funded by the Freedom Forum and is brand new. Chris Joaquin will profile it for you in an upcoming issue.



Westinghouse Electric Corp. Chairman and CEO Michael Jordan will deliver the opening keynote speech at NAB '97 at the all-industry session Monday morning. A man who values the importance of broadcasting to his company's overall structure, Jordan has set up CBS Corp. in growth mode — ready, he believes, to tackle tomorrow's tough media marketplace.

Our hearts are with you

A very sad note to end this column. Many of you know Robert (Skip) Tash, our sales manager. His dad passed away last month. Our heartfelt condolences, Skip — our prayers are with you and your family.

Well, Whad'Ya Know?

Terry Skelton, a writer with technical experience at Mutual Broadcasting and NBC-TV, joins the pages of **RW** in this issue with an inside look at the frenetic radio program "Whad'Ya Know?" with Michael Feldman."

Terry sent a big batch of photos from a recent broadcast from Phoenix. Our favorite: a familiar pink lawn ornament in an unusual stage setting. As Terry writes, "Contestants win prizes ranging from Wisconsin cheese to pink lawn flamingos ... They might even win the 'giant kielbasa.'"

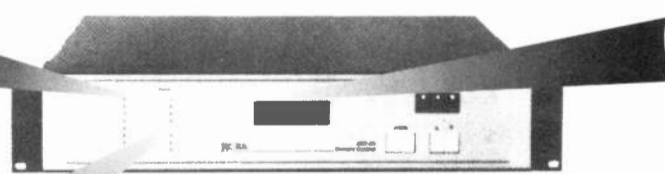
Check it out on page 74.



Photo by Terry Skelton



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The Boss responds

Dear RW,

Your gracious editorial is appreciated ("We'll Miss the Boss," Feb. 19).

I have to tell you how the "Boss" title developed. Whenever I selected superbright candidates for one of my legal assistants, I always told them, "Don't consider me your boss, consider me a friend who is *never, never* wrong." The next day they called me boss and I lost my infallibility — it turned out to be lucky for me.

James H. Quello
Commissioner
Federal Communications Commission
Washington

Booth fees

Dear RW,

I can really relate to the anonymous exhibitor who said the NAB spring show's expansion is out of control ("NAB Hikes Booth Fees," Jan. 22). Broadcasters *are* a significantly smaller percentage of the participants. I feel like I am paying more and more with no equal return on my investment!

Ten years ago, there were 10 x 10 booths and 10 x 20 booths everywhere, adding to the general aura, producing fresh, aggressive perspectives. Some of those exhibitors are now larger, like myself. But small, innovative companies no longer seem to be represented. Perusing the map of the main south hall at the LVCC, there are only 50 designated 10 x 10 booths. Do small businesses have the same potential now that we did then?

We could have gone to the Sands Convention Center, and there was plenty of space in the satellite area or in the outside remote truck area. But I feel we would miss our goals for this show outside. We were in the Sands last year and watched the attendees arriving to register, only to hop on a bus immediately for the LVCC.

We are in the LVCC this year, and I *am* happy about it, although we ended up in a booth twice as big as we need. I was told that if NAB did locate a smaller booth they would let us know. But we still had to pay for the 20 x 30, as there are no refunds after Jan. 15.

Please visit us this year in booth 7871, we have plenty of room for you!

Susan Clark
President
Clark Wire & Cable
Mundelein, Ill.

Remember the 'B' in NAB

Dear RW,

I read with great interest your article on the NAB booth fees. While we were not happy when we discovered this increase, we did not complain.

The fact that we were very pleased with last year's show, as it certainly met and even exceeded our expectations, does not mean that we are content with the increasing costs. This is especially alarming if part of the increase is due to the increasing size of the show, since it seems a greater percentage of the increased size is from exhibitors on the fringe of broadcasting. I suspect many of the exhibitors would prefer keeping the show limited to those directly involved in the mainstream of broadcasting, which is what we had five years ago, thereby keeping the size, costs and complexity to a minimum.

I share the views expressed by Jim Wood, Dave Burns, Lynn Distler and the anonymous exhibitor who spoke up. I hope others will do the same.

William L. Sien
Vice President
Systems Wireless Ltd.
Herndon, Va.

Eddie: Thumbs Up

The convention season is an excellent time to pass judgment on the job done by the NAB's 19th president, Eddie Fritts. We give him a thumbs-up, with a few reservations.

The official biography for Fritts states that he is the "official spokesman for the American broadcasting industry with the White House, Congress and federal government agencies." The Fritts NAB is among the most potent of the many organizations seeking to influence policy. The Washington Post quoted Sen. John McCain, R-Ariz., as saying that the NAB is the most powerful lobby he has encountered in Washington.

Clearly, Fritts is a good man to have on your side.

Despite many voices competing within his domain, Fritts has crafted a course through the currents of deregulation, spectrum auctions, and changing government moods. But radio is not always first to benefit. The NAB spends a tremendous amount of effort on the interests of big TV.

Fritts was weaned on broadcasting; he is the son of a small-market radio operator. He owned and ran a group of four AM and four FM stations. Considering that heritage, we think he should more frequently address the concerns of radio, and specifically of smaller stations.

To be fair, radio stations do benefit from the power of their TV brethren. When NAB acts on TV's behalf, radio usually wins too.

Fritts also is capable of saying things that strike some listeners as simplistic. In an October interview, he seemed generally dismissive of Internet audio, a technology that many of his member stations are pursuing. Similarly, in the interview that appears in this issue, Fritts said, "For those stand-alone operators who are concerned about conglomerates buying in smaller markets, it's not going to happen," he said. "The conglomerates are not interested in smaller markets."

Well, maybe.

But these are minor gripes. Eddie Fritts and the NAB deserve much of the credit for improvements in our regulatory lot. He is effective and approachable. He is paid — and paid well — to keep the concerns of broadcasters before the regulators, and to keep the regulators off the backs of the broadcasters. In this era, that's no easy job.

—RW

Letter from Rome

Dear RW,

Please accept our thanks for the article by Chris Hamaker ("All-news Is Not Just for Big Market Players," Jan. 22). He caught the spirit of our operation and the wonderful relationship between our stations and our listeners.

Thank you especially for the beautiful color photo of our building. It was the morning the Olympic Torch was nearing Atlanta and we had decked out in anticipation of the torch passing and arriving just one block away for the welcoming ceremonies. Our people were stationed all over the area providing live reports.

This building is 141 years old, built in 1856 as the home for the pastor of a Methodist Church next door. It survived a visit to Rome by a certain General Sherman and the late unpleasantness of 1860-1865. It is remarkable how well we have integrated modern digital studios and facilities into a real piece of Georgia history where candlelight, lanterns, quills, parchment, fireplaces and deep wells provided the backdrop of an earlier time.

Michael H. McDougald
President and CEO
WRGA(AM)-WQTU(FM)
Rome, Ga.

No foothold

Dear RW,

You stated that radio's greatest success stories have been written by entrepreneurs ("Poised for Leadership," Jan. 22). I believe that, with all these corporations buying up radio stations, particularly in the large markets, it will take lots of money for an entrepreneur to get the opportunity to get into the business.

In a way it's good that big radio groups have the clout to earn more respect from advertisers. But those who

really love the radio business, yet don't have the capital to buy stations or compete with the big boys, find it close to impossible to get such a foothold, especially in larger markets.

I guess they can always try sales. That's the only constant these stations need.

Pedro Hazel
Radio enthusiast
New York, NY

No Pearl Harbor today

Dear RW,

The letter from Tom Taggart ("EAS Is Little More Than Excuse for Fine," Jan. 22) is quite generally on the mark. I was one of the co-authors of the original CONELRAD System, based on frequency synchronous operation of a group of stations to thwart use of direction-finding equipment on aircraft. Remember, the Japanese planes "homed in" on KGU and/or KGMB in Honolulu that fateful morning of Dec. 7, 1941. Advancing technology and the nuclear ICBM made such a cumbersome system passé re navigational information; its only emergency grace was dissemination of emergency information to the public, which any self-respecting broadcaster would want to do even without his admonition to operate "in the public interest and necessity."

Most government programs, once begun, are hard to shut off. CONELRAD and its successive nomenclatures probably should have been brought to finality in the early '50s, and its personnel shifted to more useful endeavors. Surely there is a better way to accomplish what the EAS purports to do to justify its existence.

A. Prose Walker W4BW
A.R.R.L., QCWA, OOTC, SOWP;
Fellow I.E.E.E., Radio Club of America;
P.E.; on air 1923 spark to present
Tallahassee, Fla.

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Next Issue of Radio World
April 2, 1997

Digital Wars: EIA Strikes Back

by Matt Spangler

WASHINGTON The Electronics Industries Association is not ducking the firestorm of controversy ignited over recent statements it has made about its testing of digital audio broadcasting (DAB) systems (see *RW*, Feb. 19 and March 5).

CEMA President Gary Shapiro said he was blindsided by an attack from National Association of Broadcasters President Edward O. Fritts on the controversial DAB issue. Shapiro went to a private meeting with Fritts, planning to discuss HDTV and other video issues, but instead faced a Fritts angry about EIA's recommendation that the Federal Communications Commission abandon satellite spectrum auctions and allocate L-band, UHF or VHF spectrum to DAB.

Fritts repeated the angry words he had for EIA at last month's Radio Advertising Bureau conference. He called the move "underhanded, backhanded tactics." Shapiro said he responded by reiterating EIA's conclusions on S-band systems based on its testing: "It's not going to work for mobile electronics for car users, and they know that and we know that and we should tell the FCC that."

Shapiro also denied that the draft report released by EIA's DAR subcommittee in January shows that EIA endorses

es the Eureka-147 L-band DAB solution. He said that while NAB does indeed endorse an IBOC solution, EIA is an "impartial, neutral tester."

At the NAB Radio Group Head Fly-in last month, Shapiro laid the blame for the slow transition to digital radio at this audience's feet. "I think radio broadcasters have not shared the digital passion of their television brethren," he said.

At the same time, he suggested that there may be a place for both national and local service if and when the digital spectrum becomes available. "I am not sure we need new or additional radio broadcasters," he said. "Rather, I think local radio broadcasters should decide whether they will be exclusively local or part of a national service. And, perhaps, there can be a local portion of a national service each hour of the day. This means

that existing broadcasters would get a credit of some type when digital radio spectrum is auctioned."

Meanwhile, EIA's DAR subcommittee reviewed the criticisms of the draft report on DAB testing it released in January (see *RW*, Feb. 19) and was preparing reply comments at press time.

DAR Subcommittee Chairman Randy Brunts said the report was only generated by the DAR Caucus — a group of equipment manufacturers, some of whose members sit on the subcommittee — and not meant to be a statement of the subcommittee's position. "There are a number of things in the report that even with my mediocre understanding of all the data I don't agree with," Brunts said.

He defended the integrity of the testing process, which has been under attack of late by the various proponents. USADR

has been particularly vocal in its objection to the inclusion of data on its IBOC system in any evaluation, because it withdrew the system before field testing commenced. Brunts said USADR withdrew its system after years of laboratory tests had been performed at great expense. "USADR in particular has been treated pretty well in the process," he said.

The USADR system especially suffered in multipath performance, according to Brunts. Westinghouse has teamed up with USADR to improve the flaws in the system, but based on a paper presented to the subcommittee last year that outlined the planned improvements, "those enhancements didn't look like they were likely to lead to much better performance," said Brunts.

EIA may not be able to wait on a new and improved USADR system before the FCC wants a recommendation. "... the FCC is ready to make some moves on spectrum and they need to know what the current state of the art is," Brunts said.

Major Challenges for CBS Baseball Production

by James Careless

NEW YORK For CBS Radio Sports, the major league baseball season starts Tuesday, April 1 at 7:50 p.m. That's when

the network will broadcast its first game of the season, between the New York Yankees and the Seattle Mariners.

From there, the baseball units at CBS Radio Sports, including announcers Ernie Harwell, Jim Hunter and Hank Greenwald, will be living like players. In other words, they'll be on the road every week, getting themselves in position to broadcast two games on Saturday (afternoon and night), and one most Sundays. Plus, of course, there's the All-Star Game, the playoffs and the World Series — in short, about 100 games in all, said CBS Radio Vice President of Programming Frank Murphy.

The logistical challenges involved with providing such coverage are massive. That's why the planning process begins "as soon as the baseball schedule is released," said Murphy, "which is generally in August of the preceding year. Then we get into more specific planning usually late at the end of January, right around Super Bowl time, where we actually pick

the first several weeks of games."


"The toughest part is really trying to pick the right games," he said. "You don't know obviously when a game's going to be competitive or not, but we try to pick the teams and the rivalries that make the most sense, and at the same time, try to balance our coverage around the country, so that we get exposure to other teams as well. Obviously this year the focus is going to be on the Yankees and the other teams that were in the playoffs last year, but you also have to take the other teams into consideration."

Making things more difficult is the need not to force unnecessary program blackouts on local affiliates. For instance, in New York City, rival station WABC(AM) has the rights to the New York Yankees, so if CBS Radio schedules an at-home Yankee game on the network, local affiliate WFAN(AM) will have its network feed blacked out. That's why "we have to be careful how we schedule

See *BASEBALL*, page 7 ▶








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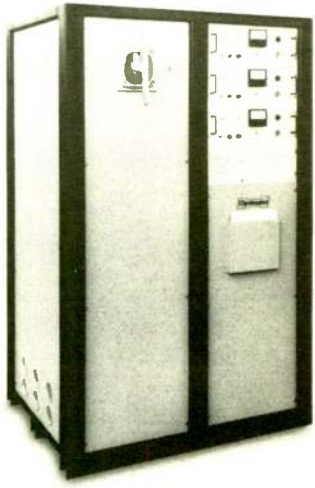
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CBS (Plugs and) Plays Ball

► **BASEBALL**, continued from page 6
 things around the country," said Murphy, "especially where you've got two teams in a market."

The bat boy

Once the schedule is worked out, the week-to-week grind shifts to the producers and to Andy Vallon, manager of technical operations for CBS Radio Networks.

It's up to each producer to handle the travel and other arrangements for individual crews. Meanwhile, it's up to Vallon to make sure the necessary equipment is in place for each week's broadcast. Shure M367 portable mixers, Sennheiser microphone-equipped headsets and transmission equipment to send the signals back to CBS' New York Broadcast Center for commercial insertion and retransmission to the network's 350 affiliates.

"We send out about six containers full of equipment to one of our engineers (usually from a local station or a local independent contractor) out in the field wherever the event is," said Vallon. "This includes the ISDN terminal, with the ISDN number already programmed into the terminal adapter, and we send out the CDQ-1000 codecs, which can either go 56 or 64 kbps." Because its crews are often covering games in different locations within hours of each other, CBS maintains nine of these kits in all.

Of course, constant shipment isn't good for any kind of broadcast equipment — the commercials about gorillas throwing around luggage at airports aren't that far off the mark, said Vallon — and the kits used by CBS Radio Sports are no exception to travel damage. Still, "surprisingly, most of the equipment stands up really well," he said, "what really takes a beating are the modems, because those were really not meant to ship."

Finicky phones

When equipment does arrive damaged, it's a scramble to find replacements before airtime, said Vallon. And even when it does, the fussiness of ISDN transmission technology, which must be programmed on-site, and thus can't "plug and play" the way a conventional telephone can, means that things can go afoul on-site.

"ISDN was meant really to sit in somebody's business, be it a station or whatever," said Vallon. "It's meant to be plugged in one time and that's it; you leave it alone. It's not meant to be plugged in, turned around, turned up, turned down, moved over here, moved over there; it's just not." (Vallon also has Switched 56 equipment in his kits, but prefers to work with ISDN because of its better audio quality, and because it costs CBS considerably less to install and maintain ISDN lines in stadiums nationwide, than it does for Switched 56.)

The problems that he sees with ISDN, plus the fact that its terminals fail during power outages, cause Vallon to rely on the analog-based Comrex STLX, which divides the audio up and sends it out via two conventional analog telephone lines as a backup. If the power should fail during a game, "you would still have your Shure mixer, which uses 9 V batteries," he said, "and you would still stay on the air, because the phone lines are independently powered. It may not sound good, but you would still be able to serve a couple of hundred affiliates who are counting on you."

ISDN's finickiness is also why "we're also insistent on getting an engineer out there on Thursday to work on the circuit, so I have all day Thursday and all day Friday to deal with problems." Having local engineers open the containers on Thursday also gives Vallon sufficient time to ship out new equipment if anything inside is "trashed."

Whatever happens, the show must go on, and go on it does. So when you tune into CBS Radio Sports for the ball game later this year, and the production sounds effortless, take a second to remember Frank Murphy and Andrew Vallon scrambling behind the scenes. After all, they won't have the time to reflect on their efforts, because they'll be too busy



CBS Radio Announcers Jerry Coleman and Al Downing prepare for a game-of-the-week broadcast.

getting ready for next week's broadcast.



James Careless is a regular contribu-

tor to RW. He covers DAB in Canada as well as radio journalism and technology. Reach him care of RW.

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Revenue Will Grow After Mega-deal

► CHANCELLOR, continued from page 1 started. Pruett predicted that another nine of the top 20 radio groups will disappear sometime over the next 18 months. Groups that are not Chancellor or CBS and are not at their full complement in the markets they share, he said, are probably scrambling to get there now.

In Atlanta, for instance, where Chancellor Media will have only one station, Pruett said he expected them to hunt for more. That leaves the other Atlanta owners with some hard decisions.

Various industry players have said the Department of Justice put a damper on radio consolidation last year when it began examining the amount of the radio pie one group could own in a market.

Broker Richard Blackburn, of Blackburn & Associates, disagreed. He said the lack of big deals recently is more the result of a lack of sellers.

"Whoever the next seller is will find a lot of buyers," said Blackburn.

No one knows who that will be. Analysts all agree that if a group like Viacom International is not buying, it becomes a target to be bought. One anonymous observer predicted ABC Radio will soon hang out a For Sale sign, citing a lack of commitment on the part of its parent company. "I'm sure the door is being pounded on," said the observer. "For 15 years, ABC Radio has been a stepchild of the regular business."

Uncharted territory

Thomas O. Hicks, chairman and CEO of Hicks, Muse, Tate and Furst and chairman of the board of Chancellor Media, and Ginsburg will serve as the new company's president and CEO.

The new group plans to divest itself of eight stations in order to comply with local limits established by the Telecommunications Act last year. The eight are two FMs each in San Francisco

and Chicago, one FM in Detroit and one FM and two AMs in Washington. Ginsburg said the group was not certain which stations it will trade or sell.

Blackburn predicted the group will look for trades or swaps.

"More important than money are other well-fitting stations," he said. "It's a maneuvering game."

The new partnership takes Ginsburg into new territory. He founded Evergreen nine years ago with Jim de Castro and Matt Devine, focusing primarily on stations in the top 10 markets. Accordingly, not one of the 42 stations the group owns or has agreements to acquire is located in any market below eleventh-ranked Miami. Likewise, the 10 Viacom radio stations are located in the top eight markets.

Chancellor, however, which was started three years ago by the investment firm of Hicks, Muse with Steve Dinetz, focused on the top 50 markets.

Including pending transactions, the group will own 51 stations in markets from top-ranked New York to 38th-ranked Orlando.

Ginsburg said the new group will focus on the top 50 markets. He admitted Evergreen was running out of opportunities in the top 10 markets anyway. The diversity, he said, will help insulate the group from regional economic ups and downs.

Peter Bowman, vice president of BIA Consulting Inc., observed that the price of radio advertising will definitely increase in Chancellor Media markets. Just after the merger announcements, the Wall Street Journal reported that Hicks also expects advertising rates to climb as bigger players control an increasing share of the market. The only surprise is that Hicks would be so candid in light of the

scrutiny expected from the Justice Department.

Radio has typically enjoyed a 7-percent share of the media pie nationwide. Bowman said he expects that to increase a couple of ticks in the future.

In Blackburn's view, no station had the chance to go after other media outlets when there were 40 separately owned

Revenue Rank	Owner	# Stations	BIA's 1996 Est. Owner Revenue (in 000's)
1	CBS Corp.	79	1,015,350
2	Chancellor Media Corp.	103	788,350
3	Jacor Communications Inc.	113	410,175
4	Amer. Radio Sys. License Corp.	93	376,850
5	Clear Channel Communications	101	291,675
6	ABC Inc. (Disney)	21	289,500
7	SFX Broadcasting Inc.	75	270,450
8	Cox Enterprises	42	202,775
9	Heftel Broadcasting Corp.	37	138,050
10	Emmis Broadcasting Corp.	11	119,200

Source: BIA's MasterAccess Radio Analyzer

Shape of Radio to Come: Here's how the combined 1996 revenue of Chancellor, Evergreen and Viacom stacks up against the other top groups.

radio stations in a market. But as groups consolidate, they have the power to compete with newspapers and television for advertising.

Gary Fries, president of the Radio Advertising Bureau, said he did not think consolidation by itself would raise rates. He said rate increases over time will depend on the ability of the consolidated group to develop a marketing plan and improve the quality of their services.

"We don't see any indication that consolidated entities have the muscle to raise rates," Fries said.

Blackburn predicted an exponential growth in revenue for the biggest groups, as radio's share of the market revenue pie grows and the individual groups' share of the radio pie increases. Fries, too, was confident that radio's piece of the media

pie will grow. He stressed the ability of consolidated entities to increase marketing and improve their products.

Ginsburg was equally optimistic, citing something more fundamental. As commutes grow longer, he said, people will have less time to spend with television and newspapers and more time to spend listening to the radio.

Viacom finally lets go

Perhaps the least surprising news last month was that Viacom Chairman and CEO Sumner Redstone had finally sold the radio branch of Viacom. The sale had been expected for some time. Blackburn noted that Viacom was a target early on: The radio group was a small part of the business and was not buying more stations.

The \$1.075 billion price tag is estimated to be around 19 times cash flow.

"It's a high price," said Bowman. But, he added, once the new group introduces economies of scale, that multiple can turn to 12, 13 or 14 overnight.

"That's the price of admittance in those top-tier mar-

kets," said Bowman.

Blackburn agreed. "I think a high multiple is warranted," he said. "This is rare property," and the chance may not come again. Groups are smart to keep adding on while they can, he said.

Bay Coalition Aims for Better Radio

by Alan Haber

SAN FRANCISCO The Coalition for Eclectic Radio is trying to bolster the values that make all kinds of quality radio grow and prosper.

The organization, 4,000 members



strong, was formed in San Francisco in 1987 to protest the sale of KRCY(FM), at the time a semi-free form eclectic music station.

Since around 1990, "the group has focused its efforts on ... getting out the word on diverse programming in the San Francisco Bay area," said Steve Finestone, a member of the group's board of directors and a lawyer at the firm of Haas and Najarian.

The coalition quarterly Radio Survival Guide lists a wide variety of commercial and non-commercial radio programs on the air in the greater San Francisco area.

The group doles out an annual slate of awards named after the legendary West Coast air personality Tom Donahue, and produces "Eclectic Ear," a quarterly newsletter. Fundraisers have been held for the group's Public Benefit Fund, which results in monies used to underwrite public radio shows.

See ECLECTIC, page 12 ►



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Radio Key in Cincinnati Campaign

by Sharon Rae

CINCINNATI The third annual "Cincinnati Instead" campaign will tout the Cincinnati/Northern Kentucky International Airport as a less-congested transfer point than other Midwest hub cities. In announcing the campaign, a Delta Air Lines official called radio a "great vehicle to get the word out."

Todd Clay, manager of corporate communications for Delta, said radio stations from 20 U.S. cities will broadcast live this spring from a concourse at the airport.

"The campaign started out following the completion of our new terminal and concourses at Cincinnati in December 1995," said Clay. "It focuses on urging connecting passengers who are traveling throughout the Midwest to choose Cincinnati as their connecting point, since Cincinnati has 222 daily flights to 76 non-stop destinations."

The airline is providing one-day complimentary trips to nearly two dozen radio stations, along with ticket voucher prizes to destinations around the country.

"We felt like we got positive results the past two years using radio for the promotion," said Clay. "We would not have scheduled this for the third time if we didn't think that radio was a viable medium in reaching our target audience."

Promotional packages

Although the "Cincinnati Instead" campaign involves only a few days of live broadcasts from the airport, the message is heard during 4-6 weeks of local on-air promotions. Stations vying for the promotion had to come up with proposals of their own.

Bill Wertz, executive vice president of Fairfield Broadcasting in Kalamazoo, Mich., said the specifics of their plan helped stations WQLR(FM) and WKZO(AM) earn the nod to run with the promotion package.

"As a first-quarter promotion it really stirred up a lot of ideas on our part," said Wertz. "We put together a proposal to do four WQLR Q-Lite Free-Flite giveaway programs to see concerts, and four AM 590 WKZO Road Trip Fly-aways to a sporting event of one of the teams WKZO carries. We are going to tell each of our winners where they are going, when they are going and what they are going to do. We've supplied everything but the airline tickets," which Delta supplied as part of their promotion.

Wertz said his staff's hard work to put the promotion together has meant some big bucks for the company.

"It's been a lot of business, but we've also used it to write a ton of business because we made a sales and programming promotion of this ... it's generated income that some stations like to have entire months of."

Ted Bushelman, director of communications for the Cincinnati/Northern Kentucky International Airport, said his crew sets up miniature studios for the stations' remotes.

Tim Eversole, the electronics engineer at the airport, said stations usually bring their own microphones and mixers, and the airport supplies the rest.

"We provide stations with a Comrex DXP.1 (digital codec), an Adtran ISU2X64 (terminal adapter), an analog backup line and fax service access," he said. "We hook everything up and test it all for them, so by the time they get there for their drive-time show, I've already done the link to their

station and checked the quality."

Tragic Setback

Eversole said the response from stations at the other end has been tremendous.



"We've had a lot of the same stations that have come back each year," he said. "I mean, have you ever met anybody who didn't want to get out of town if it didn't cost anything?"

Stations were obliged to change their plans this year due to a fatal plane crash in Detroit.

Stations including WWWM(AM) in Toledo, Ohio, KLPX(FM) in Tucson, Ariz., WKLX(FM) in Rochester, N.Y., KKLI(FM) in Colorado Springs, Colo., WZMX(FM) in Hartford, Conn., WKEE-FM in Huntington, W. Va. and CFQR-FM in Montreal were set to broadcast live from the Cincinnati/Northern Kentucky International Airport the week of Jan. 20. However, the crash of a Comair commuter plane en route from Cincinnati to Detroit forced Delta officials to call off that part of the promotion for the sake of sensitivity.

"We've been sensitive to (Delta's) needs

due to their unfortunate accident," said Wertz. "Delta has been truly super to work with. None of us will ever understand ... and hopefully will never have the opportunity to understand what it's like to be the top brass of a company who had people who were killed using their services."

The Comair Embraer-120 Brasilia fell to the ground just short of Detroit Metro Airport during a snowstorm Jan. 9, killing all 29 people aboard. The crash of flight 3272 remains under investigation by the National Transportation Safety Board.

"Delta has allowed our promotion to go forward even though they wanted to pull their visibility back," said Wertz. "They quickly responded and met all of their commitments and then some ... We still look forward to doing the live remote from the airport, but that broadcast portion will pick up later."

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Coalition Aims for Diversity

► ECLECTIC, continued from page 8

Group members are truck drivers, lawyers, doctors, accountants, artists — anyone who loves good radio.

"People have an affinity to radio," said Finestone. People "have the idea of radio as a community, as something enhancing the community, as (an) educational tool in terms of both music and public/political issues, and they don't want to give that up."

According to Finestone, eclectic radio has strong support.

"It's really surprising the letters we get from people all over who have listened to radio for years and years and years, and consider it their source of information and entertainment," he said. "They don't

like to see that (become) sterilized."

Taking a stab at expressing the viewpoint of the group, Finestone said that "it's surprising in the Bay area, which is a very diverse community, that particularly commercial radio has such a limited scope to it."

Adventure

That's not to say there hasn't been any improvement.

"There's been an improvement in the last three to four years, which I don't want to say has anything or doesn't have anything to do with our organization, but some of the commercial stations have been a bit more adventurous," he said.

Every station is programmed, he said, "but some of them have been willing to take more risks with their programming and have shows that focus maybe on upcoming non-published artists or local artists or public affairs — things that were more typical of, say, 10 years ago or maybe longer that you just don't see that much on commercial radio."

In the Bay area, said Finestone, "one thing you get is a lot of good public radio, and certainly part of our mission has been to highlight for people what is out there on public radio."

The coalition has underwritten shows on public radio stations, including "The Blues Power Hour," which aired on

KALW(FM), the public radio station owned by the San Francisco Unified School District.

How can the community aspect be brought back to radio? Finestone observed that "radio is a business, so I think anybody who ignores that is making a mistake. And public radio is a business itself — it just does business in a slightly different way. One of the things we found is that public radio has had its own experience of slimming down, as it were, or sterilizing itself, focusing on certain programs that generate the most amount of donations (and) pledges, as opposed to some that may not."

What is important, he said, "is recognizing it's a business, (and) at the same time recognizing that you may get business or you may get benefits from unexpected places that are maybe more diverse than what you might find in an Arbitron rating report or something like that."

In other words, stations would get listeners who not only frequent advertisers but also appreciate creative and personal radio — people who "appreciate it and are willing to support it, both in terms of the advertisers and the station," he said.

For information on the Coalition for Eclectic Radio, contact (415) 979-5390.

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SBE Revenue Is in the Black

by Paul J. McLane

INDIANAPOLIS For the fifth year in a row, the Society of Broadcast Engineers took in more money than it spent. In 1996, SBE had net revenue of \$76,355. Gross income was \$502,158, while expenses were \$425,803.

SBE operated in the black despite new programs and no dues hikes.

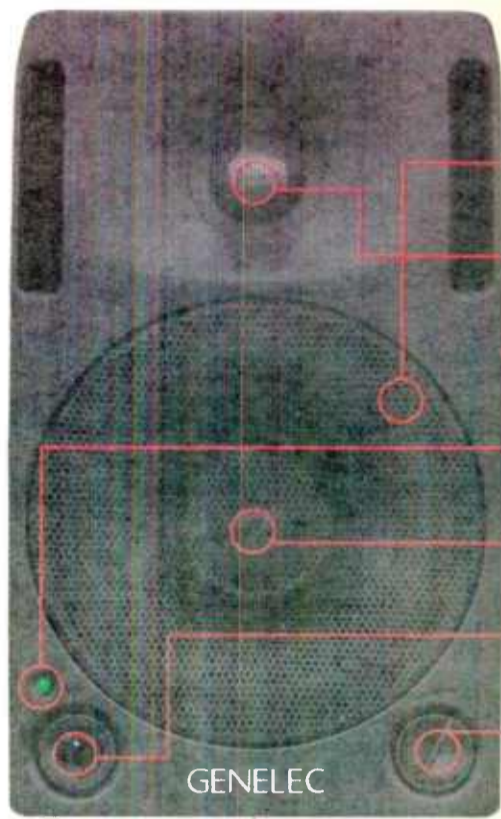
SBE is a non-profit group, so the money must go back into the organization. Executive Director John L. Poray said that, as a rule of thumb, associations should have one year's operating budget in reserve, and that SBE would like to build toward that. Other possible uses for the net revenue include a voice mail system for national headquarters, a computer upgrade and a rewriting of the SBE Exam Preparation Guide. Those decisions would be made by the SBE board.

Poray said the organization's financial performance is noteworthy. SBE operated in the black despite several new programs and no change in membership dues since 1992.

Poray expects a much smaller net revenue figure for 1997. One reason might be the death of the World Media Expo series of fall conventions, in which SBE participated under contract with NAB. Poray would not discuss the specifics of that contract.

The SBE board will hold its spring meeting Sunday, April 6, in the Hilton complex next to the Las Vegas Convention Center. The meeting is open to all SBE members.

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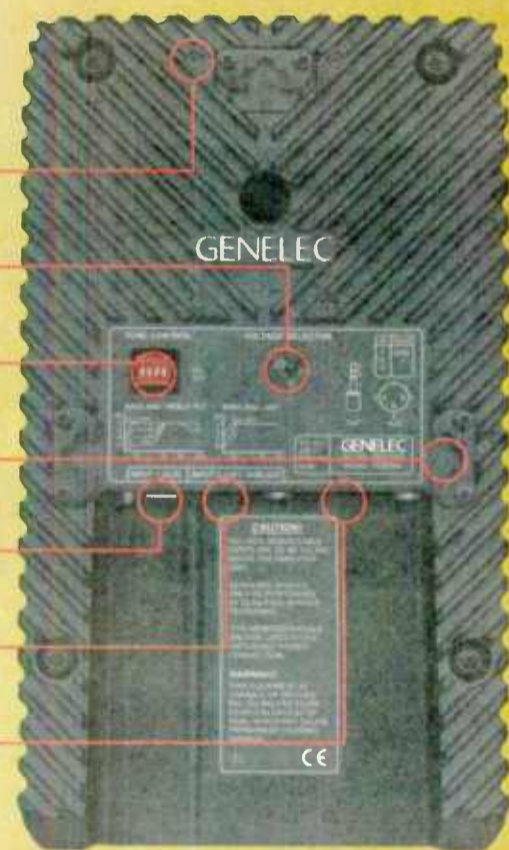
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The Whole Truth and Nothing But The Truth.

GROUNDING IN SOUND BROADCASTING

WNYC Leaves New York City Aegis

by Lee Harris

NEW YORK It took WNYC-AM-FM a long time to grow up and gain independence, but the stations still haven't moved out of the house.

After 74 years as a semi-governmental agency, the public radio operation has bought its freedom from New York's City Hall. The station manager is no longer a mayoral appointee. But WNYC-AM-FM's independence is very dependent on the new owner's ability to keep making payments on a \$20-million contract for the licenses.

AM roots

Founded in the 1920s so the city could use the latest technology to communicate with its citizens, WNYC(AM) probably

achieved its greatest fame as the station over which Mayor LaGuardia read the funny pages to the city children during a newspaper strike.

From its AM radio roots, the Municipal Broadcasting System, as it was known, expanded over the years. WNYC-FM was a pioneer, starting out at 43.9 MHz on the old FM band before World War II, before migrating to its current dial position of 93.9 MHz.

WNYC-TV operated as the first New York UHF station, inheriting an experi-

mental facility on Channel 31 that the FCC had built to study multipath reception problems in the concrete canyons of Manhattan. That "freebie" TV station eventually played a pivotal role in the WNYC-AM-FM struggle for independence.

All three stations operated on commercial frequencies. Whenever money got tight in the city, inevitably there were calls to sell the stations to the highest bidder. WNYC-AM-FM-TV management and loyal listeners and viewers were able to hold the fort.



even during New York's semi-bankrupt phase in the late 1970s. But after Rudolph W. Giuliani was sworn in as mayor in 1994, the city and WNYC-AM-FM-TV finally came to a parting of the ways.

The deal

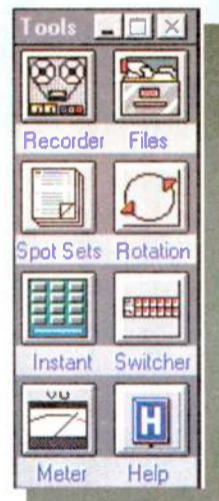
Declaring that "it's the other system of government where the state owns the broadcasting stations," Giuliani made it plain that the city was getting out of the business. While WNYC-AM-FM could fetch \$60 million on the open market, and maybe more, Giuliani was aware that depriving an estimated 800,000 listeners of public radio could have serious political consequences.

Getting rid of WNYC-TV would be less risky, as it was not the primary public television outlet in New York.

The WNYC Foundation, which had been handling fund raising for WNYC, showed that it was now prepared to continue operating the radio stations as non-commercial National Public Radio affiliates by raising \$1.2 million from 28,000 listeners as a down payment.

Giuliani then offered a deal: He would sell the radio stations to the foundation for the bargain price of \$20 million, payable over six years, in exchange for WNYC-TV being sold to the highest bidder. Dow Jones and ITT paid \$207 million for the TV station, and upon receipt of a \$3-million installment from the WNYC Foundation in early February, the mayor handed over the licenses to the radio stations.

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Although the licenses have changed hands, John Platt, WNYC-AM-FM director of marketing and communications, said the struggles of WNYC-AM-FM aren't over. "Trying to maintain the quality of programming, when we are losing city support, as well as raising \$20 million to buy the licenses, is a real challenge. The good news is that there has been a tremendous response. We've had two short on-air drives, which between them raised \$2.8 million from the audience, and that's truly record-breaking considering that it represented a total of eight days of fundraising."

Baby steps

WNYC-AM-FM is also reaching into the pockets of the philanthropic community, landing a \$1-million grant from the Ford Foundation and a \$500,000 challenge grant from the Corporation for Public Broadcasting. In all, WNYC-AM-FM have pledges of about \$10 million toward license acquisition, but Platt said it also costs money to produce programming. Constantly asking listeners to pay for both the licenses and the programming is not something he relishes.

"We'd like to raise another \$10 million as an endowment and a way of developing

See WNYC, page 15 ▶

NAB and DOJ Meet on Mergers

► DOJ, continued from page 1

One deal to which DOJ's Antitrust Division is sure to pay close attention is the Evergreen Media/Chancellor Broadcasting merger (see related story, page 1), which gives the new group an initial total of 103 stations in 21 markets. Chancellor Chairman/CEO Scott K. Ginsburg said in announcing the merger that the group will divest itself of stations in San Francisco, Chicago, Detroit and Washington in order to comply with congressionally imposed ownership caps.

Ongoing look

Last summer DOJ began probing the newly formed radio giants that resulted from the merger frenzy after the

Telecommunications Act of 1996 eased ownership restrictions. The new legislation seemed to make ownership caps a simple formula: In a major market you could own X number of stations; in a medium-size market there was a different cap and so forth. A wave of buying and selling was set off: By year's end, 2,100 stations had changed hands — over \$15 billion in transactions, compared with less than 1,200 stations and \$5 billion plus in 1995.

But Congress did not define "market," leaving that up to enforcement bodies like the Federal Communications Commission and DOJ. (The latter entity was given the final say in transactions by Congress with the "antitrust savings

clause" of the act, which said: "Nothing in this act shall be construed to modify, impair or supersede the application of any of the antitrust laws.")

Joel Klein, acting assistant attorney general of the Antitrust Division, attempted to shed some light on the issue of market definition at the NAB Radio Group Head Fly-in last month.

"We usually rely on a metropolitan area as the appropriate market, and most people agree that's reasonable," he said. "Occasionally, however, we run into a problem when people try to argue that the mere fact that a station can be heard in a given area is sufficient to include that station in the geographic market."

Further complicating matters, DOJ

does not apply any one rule to determine whether a group must divest any stations within a market. Klein told NAB representatives in a January interview that DOJ looks at "whether a merger is likely to lead to higher advertising rates or a deterioration in the services radio stations provide to advertisers in the market." At the Fly-in, he said mergers "that result in naked market power," restricting consumer choices, will be scrutinized.

One criterion often cited is that a station cannot command any more than 40 percent of the advertising revenue of a market. However, Jacor Communications was forced to spin off WKRQ(FM) in Cincinnati, giving the group about a 49-percent share in the market, before DOJ would approve Jacor's acquisition of Citicasters.

See DOJ, page 17 ►

WNYC Ventures Out On Its Own

► WNYC, continued from page 14

new programming," he said, "but ideally we'd like to avoid going back to the audience every year to ask them to contribute to the independence drive, in addition to the

twice-annual membership drive. I think we're going to have to calculate how often we have to do that as we see how the other sources of fund-

Mayor Giuliani hands over the license to Laura Walker of the WNYC Foundation.

raising are coming along."

Platt said the transition to independence has not been entirely pain-free for listeners or WNYC-AM-FM staffers. "There were definitely budget constraints as a result of \$1 million in annual city support, so some programs that were more expensive to produce were reluctantly canceled. There's certainly a long-term desire on the part of the station to developing more original programming, and as our director of programming, Arthur Cohen has said, sometimes you have to take a couple of steps to the right before you take a step forward."

WNYC-AM-FM has gained its independence, but it will not be leaving the nest, at least in the physical sense. The studios and offices remain where they've been for the past seven decades, high atop New York City's massive Municipal Building, across from City Hall. The contract of sale allows the station to continue to operate out of the Municipal Building, rent-free, for at least the next six years. Right now, in the independent halls of WNYC-AM-FM, there's no talk of leaving home.

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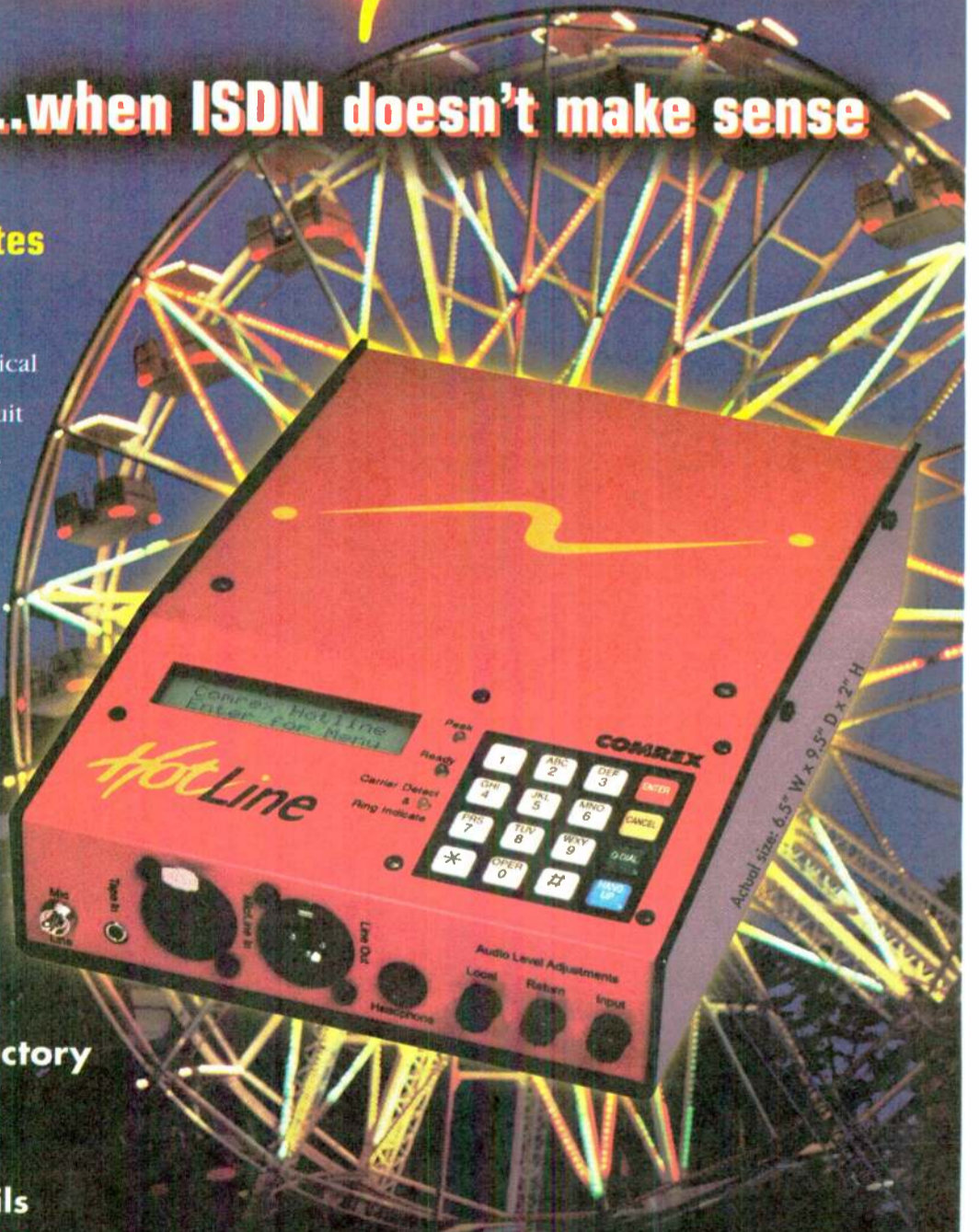
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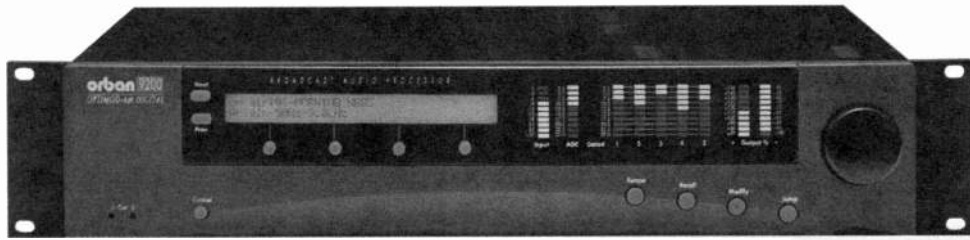
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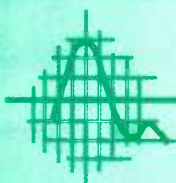
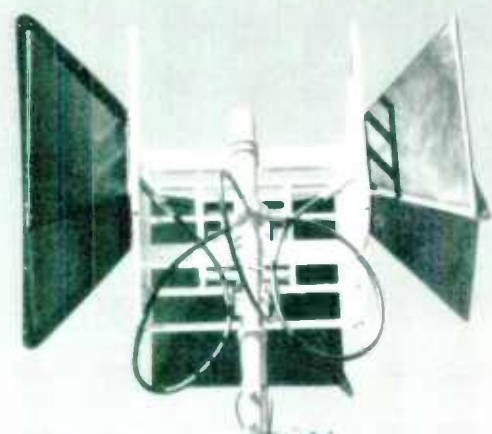
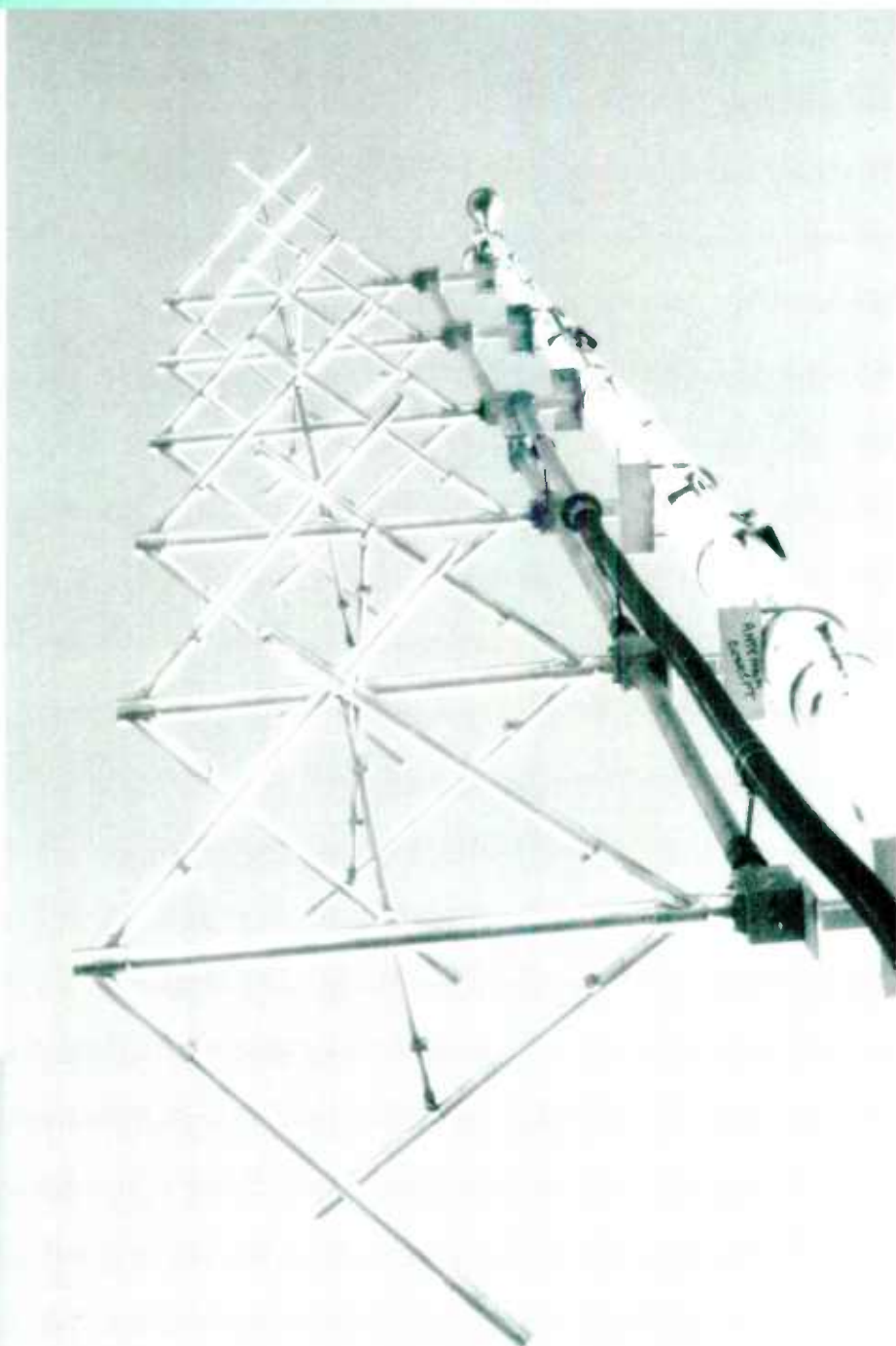
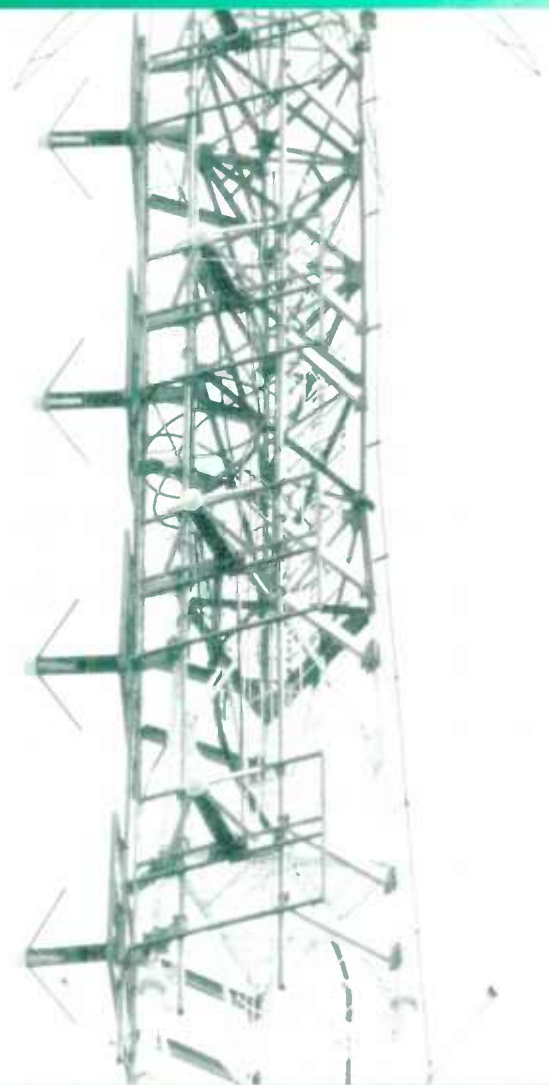
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World Radio History

PRODIGY

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Single Panel Dimensions: 45" x 45", Weight per panel: 60 pounds															
No. Bays	Antennas Per Bay	Power Gain	Gain (dBd)	Maximum Pwr. (kW)	Height (Ft.)	Weight (Lbs.)	Wind Exposure (Sq. Ft.)	No. Bays	Antennas Per Bay	Power Gain	Gain (dBd)	Maximum Pwr. (kW)	Height (Ft.)	Weight (Lbs.)	Wind Exposure (Sq. Ft.)
2	1	4.6	6.6	2	14	150	2.4	8	1	18.2	12.6	10	74	600	14.4
	2	2.3	3.6	3		300	4	2	2	9.2	9.6	15		1200	24
	3	1.5	1.8	4		450	5.6	3	3	6.0	7.9	20		1800	31.2
	4	1.2	.8	5		600	6	4	4	4.8	6.8	20		2400	26
4	1	9.2	9.6	4	34	300	4.8	10	1	23.0	13.6	15	94	750	19.2
	2	4.6	6.6	6		600	8	2	2	11.5	10.5	15		1500	32
	3	3.0	4.8	8		900	11.2	3	3	7.5	8.75	20		2250	44.8
	4	2.4	3.8	10		1200	12.0	4	4	6.0	7.8	30		3000	48
6	1	13.8	11.3	10	54	450	9.6	12	1	27.6	14.3	30	114	900	24
	2	6.9	8.3	10		900	16	2	2	13.8	13.3	30		1800	40
	3	4.5	6.6	15		1350	22.4	3	3	9.0	9.5	30		2700	56
	4	3.6	5.6	15		1800	24.0	4	4	7.2	8.6	30		3600	60



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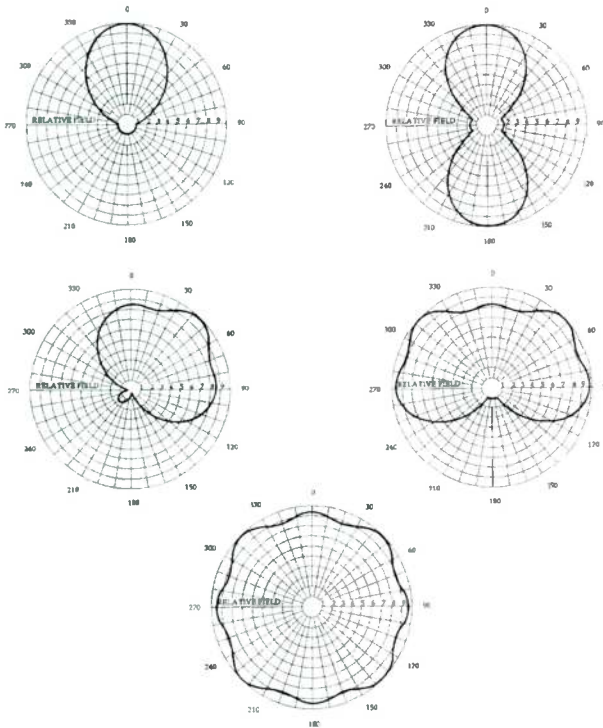
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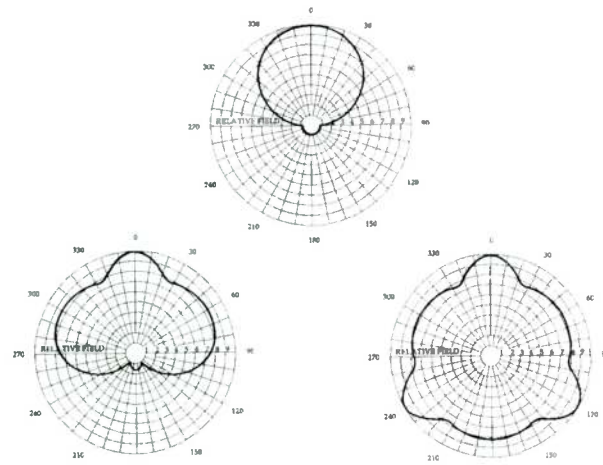
ANTENNA SYSTEM SPECIFICATIONS															
Single Panel Dimensions: 78" x 78", Weight per panel: 130 pounds															
No. Bays	Antennas Per Bay	Power Gain	Gain (dBd)	Maximum Pwr. (kW)	Height (Ft.)	Weight (Lbs.)	Wind Exposure (Sq. Ft.)	No. Bays	Antennas Per Bay	Power Gain	Gain (dBd)	Maximum Pwr. (kW)	Height (Ft.)	Weight (Lbs.)	Wind Exposure (Sq. Ft.)
1	1	3.23	5.1	10	6.6	130	16.0	6	1	20.0	13.0	60	56.6	780	96
	2	1.62	2.1	20	6.6	260	22.4	2	2	10.23	10.1	120	56.6	1560	134
	3	-1.1	0.4	30	6.6	390	31.6	3	3	6.76	8.3	150	56.6	2340	190
	4	0.9	-0.5	40	6.6	520	38.4	4	4	5.0	7.0	150	56.6	3120	230
2	1	6.45	8.1	20	16.6	260	32.0	8	1	26.9	14.3	80	76.6	1040	128
	2	3.31	5.2	40	16.6	520	44.8	2	2	13.5	11.3	150	76.6	2080	179
	3	2.23	3.5	60	16.6	780	63.2	3	3	9.12	9.6	150	76.6	3120	253
	4	1.62	2.1	80	16.6	1040	69.6	4	4	7.25	8.6	150	76.6	4160	307
4	1	13.2	11.2	30	36.6	520	64	10	1	35.5	15.5	80	96.6	1300	160
	2	6.6	8.2	60	36.6	1040	89.6	2	2	17.0	12.3	150	96.6	2600	224
	3	4.5	6.5	90	36.6	1560	126	3	3	11.75	10.7	150	96.6	3900	316
	4	3.23	5.1	120	36.6	2080	153	4	4	8.3	9.2	150	96.6	5200	384

AZIMUTH PATTERNS

(For use on square towers or poles, 4-around arrays)



(For use on triangular towers, 3-around arrays)



BULL'S EYE

ANTENNA SYSTEM SPECIFICATIONS															
Single Panel Dimensions: 75" x 75", Weight per panel: 130 pounds															
No. Bays	Antennas Per Bay	Power Gain	Gain (dBd)	Maximum Pwr. (kW)	Height (Ft.)	Weight (Lbs.)	Wind Exposure (Sq. Ft.)	No. Bays	Antennas Per Bay	Power Gain	Gain (dBd)	Maximum Pwr. (kW)	Height (Ft.)	Weight (Lbs.)	Wind Exposure (Sq. Ft.)
1	1	2.7	4.3	8	6.25	130	6	6	1	16.6	12.2	48	56.25	780	36
	2	1.35	1.3	16	6.25	260	9	2	2	6.7	8.3	96	56.25	560	54
	3	.91	-.4	24	6.25	390	12	3	3	5.75	7.6	135	56.25	2340	72
2	1	5.37	7.3	16	16.25	260	12	8	1	20.9	13.4	64	76.25	1040	48
	2	2.75	4.4	32	16.25	520	18	2	2	10.5	10.2	128	76.25	2080	72
	3	1.82	2.6	48	16.25	780	24	3	3	7.25	8.6	150	76.25	3120	96
4	1	11.0	10.4	32	36.25	520	24	10	1	27.0	14.3	80	96.25	1300	60
	2	5.5	7.4	64	36.25	1040	36	2	2	13.8	11.4	150	96.25	2600	90
	3	3.6	5.6	96	36.25	1560	48	3	3	8.9	9.5	150	96.25	3900	120

DOUBLE DIPOLE

ANTENNA SYSTEM SPECIFICATIONS															
Single Panel Dimensions: 70" x 70", Weight per panel: 75 pounds															
No. Bays	Antennas Per Bay	Power Gain	Gain (dBd)	Maximum Pwr. (kW)	Height (Ft.)	Weight (Lbs.)	Wind Exposure (Sq. Ft.)	No. Bays	Antennas Per Bay	Power Gain	Gain (dBd)	Maximum Pwr. (kW)	Height (Ft.)	Weight (Lbs.)	Wind Exposure (Sq. Ft.)
1	1	6.3	8	5	8	75	7.6	8	1	39	15.9	50	48	300	45.6
	2	3.1	4.9	10	8	150	14	2	2	20	13	50	48	600	84
	3	2.0	3	15	8	225	20	3	3	13	11.1	50	48	900	120
	4	1.5	1.8	20	8	300	24	4	4	9	9.5	50	48	1200	144
2	1	12.6	11	30	16	150	15.2	10	1	63	18	50	64	375	60.8
	2	6.2	7.9	40	16	300	28	2	2	32	15	50	64	750	112
	3	4.0	6.0	50	16	450	40	3	3	21	13.2	50	64	1125	160
	4	3.0	4.8	50	16	600	48	4	4	15	11.8	50	64	1500	192
4	1	25	14	50	32	225	30.4	12	1	68	18.3	50	80	450	76
	2	12.5	11.0	50	32	450	56	2	2	34	15.3	50	80	900	140
	3	8	9	50	32	675	80	3	3	22	13.4	50	80	1350	20
	4	6	7.8	50	32	900	96	4	4	17	12.3	50	80	1800	24

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	Input*	Weight	Wind Exp.
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* All sizes are EIA 50 Ohm

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Inputs: 7/8" – 6-1/8" EIA 50 Ohm available.

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Ultra Tracker available in larger configurations, contact factory for specifications. -40 dB side lobe suppression also available.							
At -20 dB side lobe suppression:							
No. Bays	At Frequency:	Power Gain	Gain (dBd)	Maximum Power (kW)	Height (Ft.)	Weight (Lbs.)	Wind Exposure (Sq. Ft.)
4	88 MHz	1.5	1.78	10	16.8	160	5
	98 MHz	1.5	1.78	10	15.0	156	4.88
	108 MHz	1.5	1.78	10	13.7	152	4.75
6	88 MHz	2.3	3.55	10	28	240	7.56
	98 MHz	2.3	3.55	10	25.1	234	7.32
	108 MHz	2.3	3.55	10	22.8	228	7.2
8	88 MHz	3.0	4.85	10	39.1	322	10
	98 MHz	3.0	4.85	10	35.2	312	9.75
	108 MHz	3.0	4.85	10	31.9	302	9.5
At -30 dB side lobe suppression:							
4	88 MHz	1.4	1.43	10	16.8	160	5
	98 MHz	1.4	1.43	10	15.0	156	4.88
	108 MHz	1.4	1.43	10	13.7	152	4.75
6	88 MHz	2.1	3.2	10	28	240	7.56
	98 MHz	2.1	3.2	10	25.1	234	7.32
	108 MHz	2.1	3.2	10	22.8	228	7.2
8	88 MHz	2.8	4.5	10	39.1	322	10
	98 MHz	2.8	4.5	10	35.2	312	9.75
	108 MHz	2.8	4.5	10	31.9	302	9.5

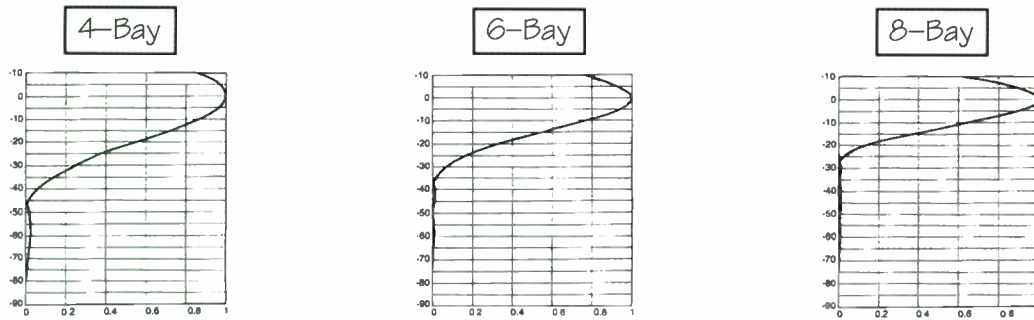
FM TRACKER

ANTENNA SYSTEM SPECIFICATIONS							
No. Bays	At Frequency:	Power Gain	Gain (dBd)	Maximum Power (kW)	Height (Ft.)	Weight (Lbs.)	Wind Exposure (Sq. Ft.)
1	Low Power	0.46	-3.42	3	5	29	.92
	Med. Power			10		39	1.2
	High Power			10		43	1.42
2	Low Power	1.00	0.00	3	15	58	1.84
	Med. Power			10		80	2.44
	High Power			20		88	2.84
3	Low Power	1.56	1.93	3	25	87	2.76
	Med. Power			10		117	3.66
	High Power			30		135	4.26
4	Low Power	2.13	3.28	3	35	116	3.68
	Med. Power			10		156	4.88
	High Power			30		196	5.3
5	Low Power	2.72	4.34	3	45	145	4.58
	Med. Power			10		195	6.2
	High Power			50		245	7.1
6	Low Power	3.30	5.18	3	55	174	5.52
	Med. Power			10		234	7.4
	High Power			50		294	7.4
8	Low Power	4.39	6.42	3	75	232	7.36
	Med. Power			10		312	10.1
	High Power			50		392	10.1
10	Low Power	5.44	7.43	3	95	290	9.2
	Med. Power			10		390	12.6
	High Power			60		490	12.6
12	Low Power	6.6	8.18	3	115	368	11.04
	Med. Power			10		468	14.7
	High Power			60		588	17

ELEVATION PATTERNS

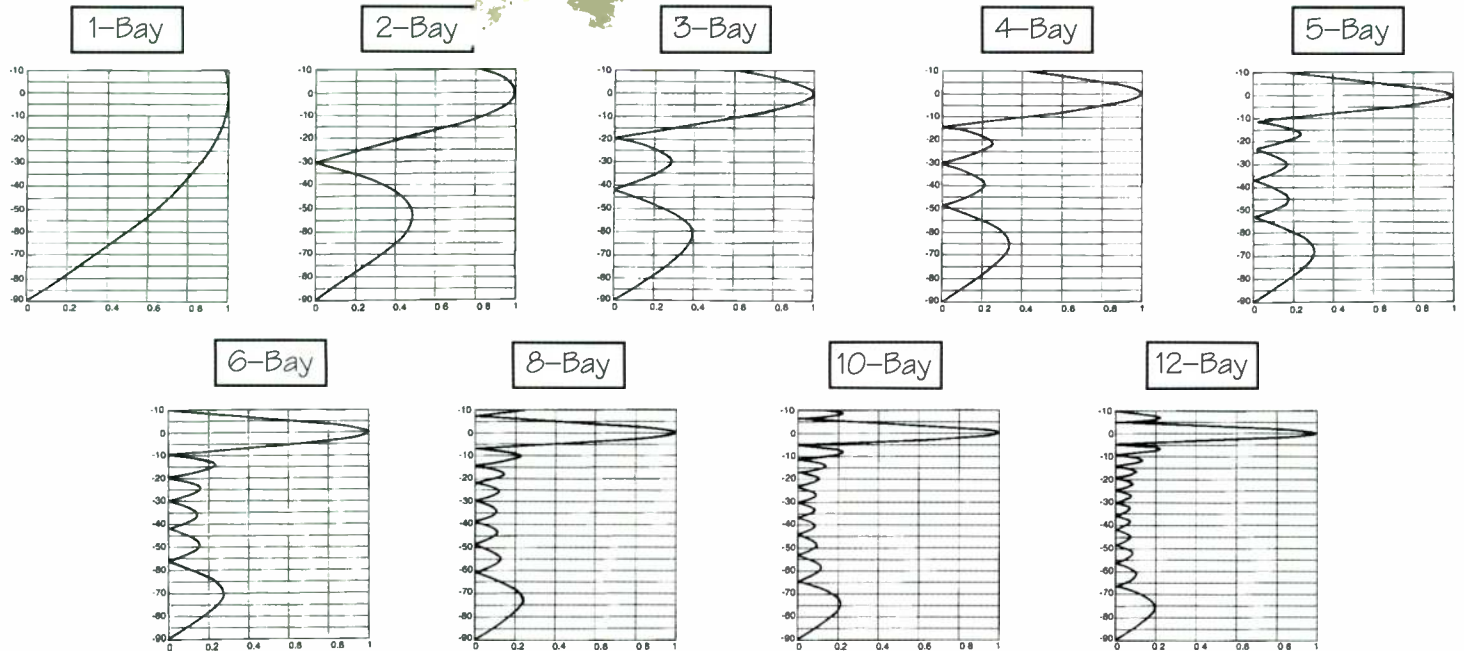
FOR ULTRA TRACKER:

(1/2-wave spaced CP Omnidirectional RFR Eliminator)



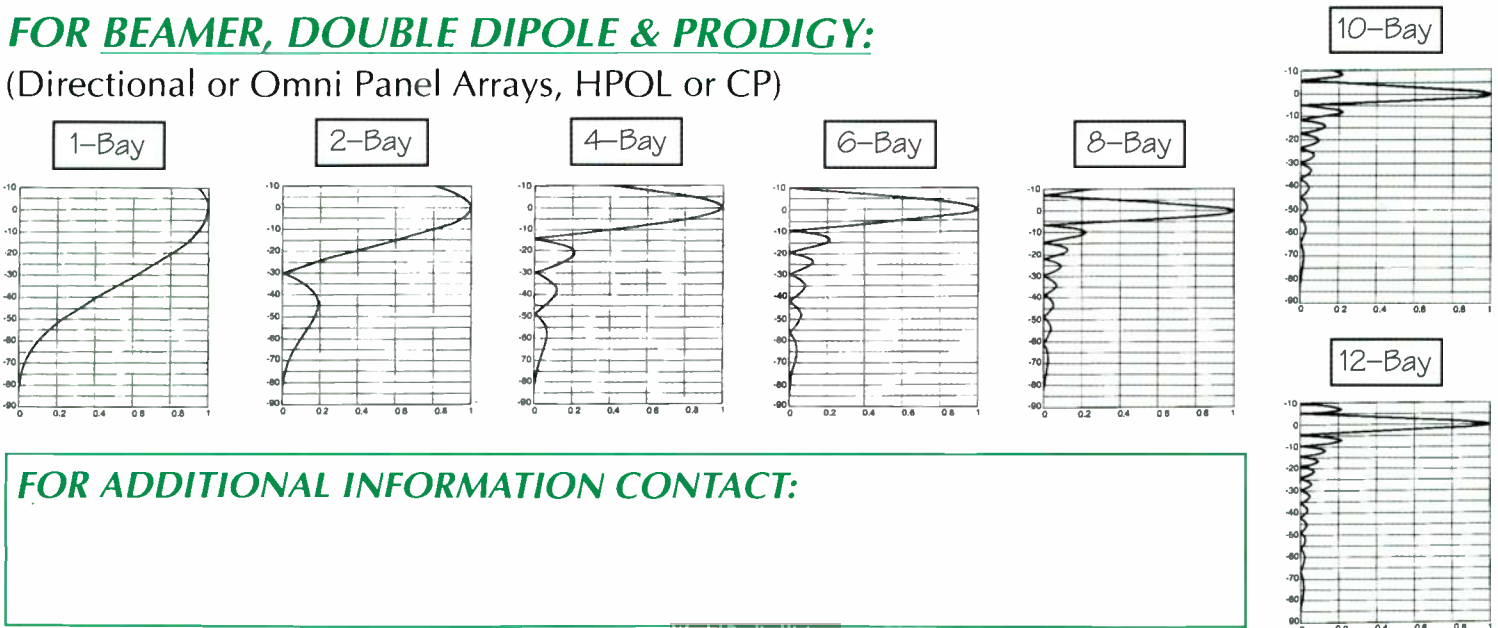
FOR FM TRACKER:

(Full-wave spaced CP Omnidirectional)



FOR BEAMER, DOUBLE DIPOLE & PRODIGY:

(Directional or Omni Panel Arrays, HPOL or CP)



FOR ADDITIONAL INFORMATION CONTACT:

NAB Questions FCC Reviews

► DOJ, continued from page 15

Klein would not provide the group heads with a litmus test to apply to all mergers, but he did advise them to begin consulting their attorneys any time it appeared that a deal would give their group greater than a 35 percent share in a given market.

As if things weren't confusing enough, DOJ also claimed that, in some cases, LPMAs and JSAs fall under the jurisdiction of Hart-Scott-Rodino filing requirements. If the LMA or JSA represents "a change in the beneficial ownership" of one of the entities involved in the eyes of the DOJ then HSR filing may have to be completed before the transaction is approved.

Klein told the NAB that the practice of allowing a radio station to sell the advertising time of a competitor "necessarily eliminate(s) competition between the stations involved."

American Radio Systems (ARS) had to spin off three stations in Rochester, N.Y., because DOJ claimed a JSA they had formed was driving out competition in the market — "a clear violation of the Sherman (Antitrust) Act," in the words of Randolph Cellini, a supervising attorney with the DOJ Media Mergers Task Force.

Another item that DOJ pulled out of its sleeve recently was the civil investigative demand (CID). One of these was handed out to Cox Radio, which is completing its acquisition of NewCity Communications, giving Cox five stations in the Syracuse, N.Y., market.

Format monopolies?

Though Cox has completed its HSR filing, which has provided DOJ with documentation on the effect that the acquisition will have on the Syracuse market, DOJ still has an interest in the case. The CID, described as an "administrative subpoena," gives DOJ license to ask virtually anybody about anything for any reason," according to Cox CEO Maritza Pichon. According to speculation from a prominent Washington communications attorney, the Cox response to the CID will probably be to so inundate DOJ with paperwork that it would be difficult to respond within the time frame allotted.

Because FCC approval of the deal is imminent, and Cox expects it to close in the first half of 1997, DOJ would have to take the group to court to stop the transaction at this point.

Still another development is the DOJ investigation into "format monopolies." In addition to looking at the number of stations a group has in a market or its command of the market advertising revenue,

DOJ also has turned its head if a single licensee has control over all the stations in a particular format in that market.

Last month, DOJ forced EZ Communications to abandon its attempts to swap stations in Charlotte, N.C., which the department said would have given EZ a monopoly on the country format and SFX Broadcasting control of rock.

NAB President/CEO Edward O. Fritts seemed concerned that the completion of radio transactions is bogged down by federal bureaucracy.

"We have some concern that the FCC and the Justice Department have been playing footsie to slow down some of these transfers," he said. "In other words,

if the Justice Department does an investigation of a radio merger, and they give a green light, then and only then will the FCC begin to look at it ... The Justice Department indicated to us that in fact they had been in league with the FCC and were slowing down transactions about 60 to 90 (days) and in some cases a year." (See page 19.)

Klein steadfastly denied this in the January dialogue, saying: "I have made it absolutely clear that we will not ask the FCC to hold up its consideration of the license transfers associated with the mergers we are investigating."

Sen. Conrad Burns, R-Mont., is not convinced that the FCC is out of line. In

a letter sent to the commissioners last month, he wrote: "Since the Department of Justice is already providing an adequate review of the concentration issue, duplication of this review by the FCC calls into question your allocation of limited government resources and, further, questions the need for continued funding for the FCC's Bureau of Competition."

Fritts was vague on whether he thought DOJ was coming to an understanding of the NAB assertion that radio should not be defined as a separate medium when determining a group's share within a given market. (DOJ has apparently assumed all along that there are no media that serve as alternatives to radio for advertisers within

a market.) Fritts said only: "I think that the Justice Department and their staff under former Chief Anne Bingaman have a pre-conceived notion relative to the radio marketplace. I can't say definitively that that's been completely turned around at this point, but I will say that I think progress has been made."

Klein said in January that whether or not radio should be defined as a separate medium is beside the point: "... telling us that radio is only one medium of many doesn't tell us what the right antitrust market is, or whether a significant number of advertisers will pay higher rates following a radio merger, which is the relevant question for us."

Buyers beware: Cellini said that DOJ is looking also at mergers in a number of markets that have not been made public yet.

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Radio World, March 19, 1997

Explosive NAB Growth Continues in 1997

Matt Spangler

Expect one thing above the gaggle of cabs, power buffet lunches and glamour and glitz of new casinos in Las Vegas: to be overwhelmed. Nearly 100,000 attendees. More than 200 sessions at 13 conferences. More than 1,200 exhibitors.

You're going to need a map — perhaps several — at this year's National Association of Broadcasters convention.

Jordan speaks

Visitors to NAB '97 will see and hear the most mighty people in broadcasting.

Westinghouse Chairman and Chief Executive Officer Michael H. Jordan will deliver the keynote address at the All-Industry Opening on April 7. Westinghouse/CBS recently closed on the purchase of Infinity Broadcasting, creating a new powerhouse radio group. His company has also been a leading proponent of a terrestrial solution to digital broadcasting.

NAB President Edward O. Fritts will deliver his annual "state of the industry" address prior to Jordan's speech.

Federal Communications Commission Chairman Reed E. Hundt will speak at the FCC Chairman's Breakfast, part of the Broadcasters' Law & Regulation Conference. He is expected to reiterate his regulatory agenda for 1997.



Dick Orkin, known as the voice behind such classic late 1960s advertising serials as "Chickenman," "The Tooth Fairy" and "The Masked Minuteman," will keynote the NAB Radio Luncheon, to be held on the second day of the Radio Management/RAB Sales & Marketing Conference. His Radio Ranch commercials have been called "the established masters of the advertising theater of the absurd."

Many other notable speakers will appear. Ellen Hancock is executive vice president of Apple Computers. She will deliver the MultiMedia World

keynote address. Jack Valenti, chairman and CEO of the Motion Picture Association of America, will give the keynote address at the TV/TVB Joint Luncheon, part of the Television Management Conference; television attendees no doubt will be interested in hearing of his experiences with content ratings.

RW Editor in Chief Lucia Cobo will moderate a special "sneak preview" session on Sunday afternoon at 1:30 to help managers plan their walk through the radio/audio exhibits.

In the news

Managers will come to NAB with plenty to talk about: the new, big groups

of radio in the post-Telecom Act era; the role of the Justice Department in approving consolidation deals; spectrum auctions; possible new appointees to the FCC. As always, conventioners will meet in the seminar rooms and show booths, hotel bars, casinos and nightclubs, to hammer out station deals, bargain for equipment packages, plant business cards and sniff around for anybody who's hiring.

At every NAB show, some of the best action takes place in the aisles and booths of the exhibit floors. Will this year's "buzz" be digital audio consoles, or tools for creating wide area networks for audio sharing, or streaming technology to send your station audio to an Internet audience? What will transmitter man-

ufacturers show, in the face of domestic uncertainty over the future of DAB?

As in the past, the biggest concentration of radio-related exhibits is in the North Hall of the Las Vegas Convention Center. But radio broadcasters cannot confine themselves to one exhibit hall, nor even to the entire LVCC. This year, some 20 radio/audio companies, including ABC Radio International, Pristine Systems, Sonofex, JK Audio and Tannoy TGI North American, will show their wares in a special exhibit area at the Sands Expo Center.

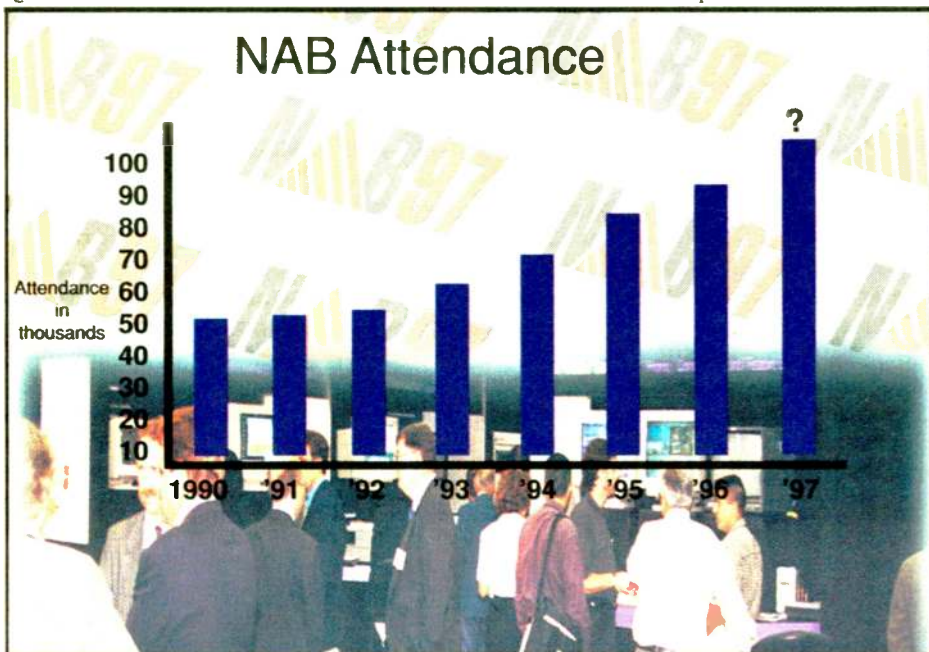
Radio-related exhibitors can also be found intermingled with TV and other exhibitors on the large LVCC show floor in the South Hall.

The Sands is also the site of NAB MultiMedia World, a potpourri of sessions and exhibits of emerging technologies including interactive multimedia, Internet/intranets, telecommunications and corporate communications. NAB expects this to be another record-setting year at MultiMedia World, with more than 720,000 square feet of exhibit space, an 11 percent increase from 1996.

This year the Uplink International Satellite Conference, which reviews emerging satellite technologies and explores the effects of satellite communication, is part of the larger Communications and Connectivity conference. The other half of this conference is the new Electronic Distribution Conference, which will demonstrate a variety of telecommunications technologies, including satellite, wireless, fiber optics and copper.

Two other new conferences are part of MultiMedia World. The New Media Professionals Conference is designed for those who want to be brought up to speed on technologies and applications that run the gamut from

See NAB, page 42 ▶



This may be the year that NAB attendance hits six figures. If so, the show will have virtually doubled in just six years.

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Fritts: FCC Should Move Faster

Conglomerates are not interested in buying up stand-alone radio stations in smaller markets. The FCC and the Justice Department should stop playing "footsie" with radio consolidation. The limitation of advertising as a tax deduction could be "devastating" to all advertiser support.

These are among the views of National Association of Broadcasters President Edward O. Fritts, expressed in an interview with *RW* Associate Editor of News Matt Spangler and Editor in Chief Lucia Cobo.

RW: How would you rate the FCC's performance in implementation of the Telecommunications Act?

FRITTS: In the area of radio ... we were concerned that they were not moving as quickly as possible. We have some concerns that the FCC and the Justice Department have been playing footsie to slow down some of these transfers. In other words, if the Justice Department does an investigation of a radio merger, and they give a green light, then and only then will the FCC begin to look at it.

Unfortunately, many of the issues that Justice has looked at, the FCC decides to look at again, which stretches the transfer process out and runs the legal fees up on all these transactions to a ghastly amount of money in some instances. We would prefer that the FCC start moving forward of its own volition, as well as the Justice Department. The Justice Department indicated to us that, in fact, they had been in league with the FCC and were slowing down transactions about 60 to 90 (days) and in some cases a year. We think that's an artificial constraint.

DAB — Questions of fairness

RW: Have you read any synopses of the draft report put out by the Digital Audio Radio subcommittee in Las Vegas at the Winter Consumer Electronics Show?



Edward O. Fritts

FRITTS: That raises some interesting questions as to the fairness of the tests, as to the objectivity of the tests and the equity involved in this whole process. The Consumer Electronics Manufacturers Association wants to sell more radios; they'd like to introduce a new band of radio to be able to sell, produce and manufacture more radios to help their electronics economy, which has been rather flat. So, I guess this has been an exercise in self-promotion in a lot of ways.

On the other hand, broadcasters and electronics manufacturers need to operate on the same wavelength in order to bring consumers the best quality radio possible.

There (are) some things happening on IBOC (in-band, on-channel) that render those tests invalid; they said IBOC was a failure, but that's old information. Westinghouse Electric has made a significant, multimillion-dollar commitment to revamping the IBOC program, and they've offered to light a torch, and I'm told it's progressing nicely — although it's going to take about 18 months for it to come to fruition.

I don't know the status of

AT&T/Lucent, whether they're doing any revamping of their system or not, but we have offered at the appropriate time to provide a forum for fair and objective testing of the IBOC systems ... USA Digital will have a booth and information on IBOC's progress at the NAB in Las Vegas.

Growth of the show

RW: I know that the spring NAB show has been quite successful as far as selling out exhibit space. Despite the years of a close-knit group of companies displaying their gear at the audio/radio hall, the exhibitor growth has meant some audio hall exhibitors have to move to the remotely located Sands Hotel. Is NAB feeling the heat of these growing pains?

FRITTS: I guess one could say that demand has exceeded supply. The only place that we had available under our current system of allocations was to expand our radio/audio into the Sands. Some people look at that as a negative; others look at it as a wonderful opportunity. The reason being that we'll have the Internet pavilion, which has great appeal for radio, in the Sands, as well as some other interesting technologies that people are going to come see.

I haven't done any research to find out how many radio broadcasters have gone to the Sands or not gone to the Sands. My impression is that those who are exhibiting in the Sands will get good value received for their money.

Prior to going to the Sands, we ended

up with 200 exhibitors on the waiting list wanting to exhibit at the NAB show. The major exhibitors said, "Gee, we hate to see any new emerging technology companies being precluded from showing their wares at this show." So, it was the exhibitor advisory committee that actually motivated us to expand into the Sands so that we could accommodate more of the hot new technologies.

RW: We understand the board picked Seattle as the location for the 1998 Radio Show.

FRITTS: I'm very excited about Seattle ... It has a fabulous convention center, right downtown, within three to five minutes of several major hotels. Seattle is a little San Francisco: very cosmopolitan downtown, very safe, very attractive and it's going to be a bang-up convention.

RW: It sounds like you're energized about the Radio Show ...

FRITTS: We're excited about the opportunity to put our sole focus on radio. I think the industry has responded accordingly.

RW: Can you tell us what other cities you're considering for future shows?

FRITTS: We're on the cusp of being able to announce the next few stops, and I think the radio industry will find this very exciting.

One of the things that we haven't been able to do is get back into the Northeast. The problem with that is the convention center in Boston is so popular ... We have been attempting to get back ... but they are booked solid during the time frames

See FRITTS, page 47



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WGN's Phillips Is Hall Inductee

Alan Haber

Wally Phillips has a bone to pick with Tom Mix.

When he was a kid, Phillips rushed some cereal box tops and a shiny dime into the mail for a code ring that, when held up to the light, was supposed to reveal Mix and his wonder horse Tony. Phillips lamented that he "never could find them. I've been waiting to catch up with (Mix) for 50 years."

Listeners in Chicago have been catching up with Phillips on WGN(AM) for 41 astounding years.

When Phillips is introduced as the 1997 radio inductee of the National Association of Broadcasters' Broadcasting Hall of Fame at NAB '97, he hopes people will take away with them "the fact that there's some sincerity attached to what I do."

Fun

Phillips, still having fun in his 50th year in radio, took off on his airwaves journey at the age of 22 in July 1947 at WJEF(AM) in Grand Rapids, Mich. He had been taking night courses at the Schuster-Martin School of Drama in Cincinnati, and got the WJEF job after the woman who ran the school sent a tape to the station.

WJEF was "looking for cheapies to start as announcers," said Phillips, who began as a staff announcer.

"All the announcers there used to fight for the night shift, because the station studios were in a hotel. This was the top floor and you could see into all the rooms," he remembered, adding with a laugh that he worked the night shift "as often as I could."

He worked at WJEF for a year. The next stop on the Phillips timeline was WSAI(AM) Cincinnati, where he worked from 1948 to 1950. While there, he set a classic prank into motion.

"I had a friend who was a very august newsman," he said. Phillips took some

paper from the newsroom and inserted into the newsman's copy a sheet that read "All former servicemen, please report to their draft boards immediately."

"I thought he'd see it and throw it away," said Phillips. "But the poor guy read it right in the middle of his newscast."

In 1950, Phillips moved across town to WCPO(AM). It was here that humor started to play a part in what he was doing on the air. "That's when I started to use the voices, the inserts," he said. "It just was a thing that added some sense to the whole idea to me, because I didn't want to keep doing the same thing everybody else was doing."

In 1952, he joined the powerhouse Cincinnati station WLW(AM), where he took over the all-night shift. Because of the station's strong signal, he received mail "from 48 states. It was fun." Phillips did a lot of voices at WLW, and a lot of phone work, too — something that many people know him for.

"There wasn't a lot of phone work going on there then," said Phillips. "It gave me an idea: Why can't people hear the guests too, instead of just this personality?"

While at WLW, Phillips dipped his toes into the small screen arena, doing a morning variety show opposite Arthur Godfrey on the station's TV counterpart (he also did a night time show). "We did pretty well," said Phillips. "We had a live band and two or three singers."

Chemistry

Phillips blew into the Windy City in 1956, thanks to Ward Quaal, a vice president at WLW, who moved to Chicago to be president of WGN radio and TV in 1956. Quaal asked Phillips to make the move, too. Upon arriving, Phillips got his feet wet by doing an hour-long music show in the afternoon and another in the evening.

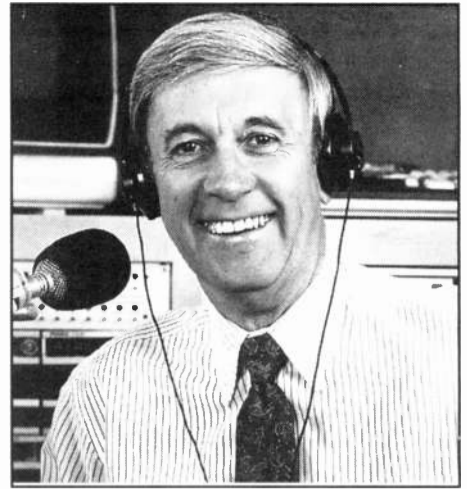
Phillips continued in the hour-long format until around the end of 1958. He

dabbled in television at WGN-TV, hosting an imitation "American Bandstand" kind of show for about a year and a half.

At that point, Phillips assumed the 9 a.m. to noon shift at WGN(AM); in January 1965 he moved to the 6 a.m. to 9 a.m. slot, which later expanded to 5 a.m. to 10 a.m.

There was something about the early chemistry at WGN that worked. Phillips concentrated on local happenings, "things of interest to people more than anything else, I think," he said. He took to the telephones, and logged many a diverting call.

Today, Phillips entertains Chicago on Sunday mornings from 6:30 a.m. to 9:00 a.m.; he also tackles occasional fill-ins. When people tell him they've grown up listening to him, he feels enriched.



Wally Phillips

"That's a compliment," he said.

As he heads into his second half-century of broadcasting, Phillips observed that radio is "not going to go away. It's a friend."

EAS Is Still an Issue For Some Stations

Lynn Meadows

The Emergency Alert System probably falls just shy of the O.J. Simpson case in the category of "topics beaten into the ground." But it is not going away.

Bad weather in several parts of the country didn't wait for stations to get accustomed to their EAS gear. Floods and tornados reminded state organizations of the need to educate stations about their plans. And almost two months after the Jan. 1 deadline to install EAS equipment, many radio stations were not in compliance, judging by calls to EAS equipment suppliers.

Every manufacturer interviewed said they were still fielding calls daily about EAS boxes from broadcasters who had yet to buy one.

Dave Halprin of HollyAnne Corp. said

20 percent of HollyAnne EAS sales had taken place after the deadline.

"We're not shipping out as rapidly as in December," said an MTS spokesman, but he said the company still had many late buyers. Some said they had tried other products and simply wanted to try the MTS box.

The percentage of stations that have not ordered is virtually impossible to calculate, given recent radio consolidation. Jim Woods of Harris Corp. said his company estimated that as many as 20 percent of the broadcast outlets had not purchased or received EAS equipment as of mid-February.

"Some of this is simply due to the confusion related to the completion of the state plans," he said. "Some stations do not know what equipment they will need in order to comply with the state plan, so they are delaying purchasing until a complete complement of equipment can be purchased all at once."

TFT Inc. was still getting five or six calls a day as late as mid-February, according to Director of Marketing Darryl Parker. He estimated then that 3 to 4 percent of the market still had not made their selection. Reasons purchasers gave for their late orders varied from "I certainly am ticked off about this," to "I'm just getting around to ordering," to the occasional broadcaster who had no idea the Emergency Broadcast System is being retired.

EAS implementation continues, stragglers or no. Parker said he thought implementation was going "very well — much better than what we had hoped for." In California, the EAS was barely 24 hours old when it was "baptized" by the floods on Jan. 2. By the third activation, Parker said, the LPTI station in Sacramento was on the right track.

Later that month, Alabama and Tennessee got to test their new systems when tornados touched down.

"If we could have scheduled those tornados, obviously we would not have done it less than two weeks after the first monthly test," said Whit Adamson, executive vice president of the Tennessee

See EAS, page 34 ▶

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The NAB: Who Gets to Go?

Bob Rusk

As a handful of large companies merge and buy up radio stations, the picture of who attends the NAB spring convention is blurring.

In the days before consolidation, management and engineering representatives from smaller station groups were almost always in attendance.

But now, some big operators, including SFX Broadcasting and American Radio Systems (ARS), put less merit in the Las Vegas show.

ARS, instead, chooses to have more of a presence at the fall NAB Radio Show (to be held this year in New Orleans).

"Traditionally, we've always found that show more productive," said co-chief operating officer David Pearlman. "We think there are more well-rounded activities aimed at the radio industry."

ARS, formed three years ago, has never sent a major contingent to the spring show.

While some ARS corporate executives will likely be in Las Vegas, Pearlman said, "We're not going to be there *en masse*. We don't send a lot of people, other than for specific banking meetings, presentations for stock groups, or major construction projects."

He said, "It's no offense to anybody, it's just (a matter of the) efficiencies of doing business in today's ever-changing broadcasting world."

At the local level, one ARS general manager, who spoke on the condition of anonymity, told *RW* that the company allows each station to decide if representatives will go to Las Vegas.

"Personally, I just don't see much benefit for us to attend," the manager said. "It's more of a TV convention."

A corporate representative of SFX Broadcasting, meanwhile, echoed those words, saying the company does not consider the Las Vegas show to be a radio industry conference. As a result, SFX

will not be sending anyone at all. That means no "managers, executives, and the like," will attend, the source said.

Such reports may not be surprising, not only in light of consolidation, but also considering the changes in the spring show to incorporate many other facets of communication outside of traditional broadcasting.

These facets include multimedia, the Internet, satellite systems and telecommunications. Yet for many other radio people, the spring NAB show remains the single most important event on the calendar.

Others will come

Los Angeles-based KHWY Inc., a small group owner, sends representatives to both shows. The company owns three stations in the California desert between Los Angeles and Las Vegas, and three stations in Honolulu.

Among the company contingent at NAB '97 will be the manager of the Hawaii stations and one program director (the stations are programmed separately).

"Honolulu is because that market is so isolated," said Howard B. Anderson, president of KHWY Inc. "If they were working in California, they could call someone in San Francisco or Los Angeles, and find out what's happening in the spot business. They could also monitor stations (in other nearby cities)."

The program directors rotate, so each has the opportunity to attend a convention.

Anderson said his employees "need to have experiences that put them in the mainstream of broadcasting." He said, "(Both) NAB shows are a valuable experience for them."

Major groups Jacor Communications and ABC Inc. are among those that will be visible at NAB '97.

An ABC spokesperson did not know exactly how many attendees the group would be sending, but said it would be

"about the same number of people as last year."

The spokesperson explained that each department — ranging from affiliate relations to engineering — has its own budget and decides individually who will attend and to "foot the fee for the engineer to get there."

At Jacor, Al Kenyon, corporate vice president/engineering, said individual stations/managers are encouraged to attend and to "foot the fee for the engineer to get there."

Kenyon said that, with well over a hundred stations, "It's senseless to try and exert close control over that many stations, unless you want micro-management from the corporate office. I don't think that's the best way to do it."

"We depend on a great deal of skill and intelligence in our markets and give our people what they need. Exposure to peers, new equipment and dialogue with manufacturers is important."

SBE supports show

John Poray, executive director of the Society of Broadcast Engineers, said he does not expect the Las Vegas show to decrease significantly.

"But," he said, "I'm going to be curious to see (the number) afterwards. The number of people who register for the Broadcast Engineering Conference compared to previous years will be a good indication."



David Pearlman of American Radio Systems

That conference is co-sponsored at the convention by the NAB and SBE.

In this age of constant change in the radio business, Poray said broadcasters should attend the convention and stay on the cutting edge of technological advancements.

"Even for a company that owns multiple stations, there's enough variety in the kind of setup that they have at each location," he said. "For one or two corporate engineers to have a handle on everything that's needed at a hundred-plus radio stations would be difficult, particularly if the corporation hasn't had the experience that long."

Concluded Jacor's Kenyon, "You don't need to send everybody, but you do need to send the principal people from each market. By and large, they're making independent decisions."

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Money Is Available for Purchases

Bob Rusk

A radio station owner can secure a loan of \$5 million more easily than a loan of \$500,000. That is one of today's odd economic facts of life.

From the perspective of a national lending institution, it takes more work to put together the smaller loan. To maximize the return, bigger is definitely better.

That's fine for major group owners who require millions of dollars to complete additional station purchases. But what about the smaller groups that may want to buy a station priced in the low six figures?

The money is available. Unlike the big groups, who deal with lenders who know their way around Wall Street, smaller operators need only take a stroll down Main Street.

Ham Broadcasting secures capital exclusively from small-town banks. The company is located in Trigg County, Ky., the self-described "country ham-producing capital of the world" and home to 10,000 people. Ham Broadcasting owns WKDZ-AM-FM in Cadiz and WQKS(AM) in nearby Hopkinsville.

"We have established relationships with local financial institutions," said D.J. Everett, president of Ham Broadcasting. "We have not had problems getting additional capital. We've done business with the same people for many years. They're familiar with our record and our payback, because they have financed other things for us."

Everett said he would be surprised if money could not be found locally, particularly if it was going to be put back into the local economy.

He has applied for an FM license in Hopkinsville. "I like to be where I can listen to every one of my stations."

Seller financing

T. A. Branson, a broker based in Wheatland, Wyo., who specializes in markets with populations under 25,000, said most of his transactions are a combination of bank and seller financing.

Branson gave a hypothetical example of a radio station priced at \$100,000.

"The bank will determine what the station's equipment is worth," said Branson. "That normally comes to about one-third of the value. The (bank) will usually finance that, as long as the seller takes a second position."

Branson, himself a former station owner, said he has not seen a recent change in the way small- and medium-market sales are financed.

Another broker who handles small- and medium-market deals, Andrew P. McClure, president of Exline Co., said more banks are getting involved with station sales as a result of FCC deregulation. They include regional institutions that do business in more than one state.

Some banks now see the critical mass that groups can have by owning so many stations, said McClure, who is based in San Rafael, Calif. "(Banks) now see radio as a stronger investment, with the potential of a better cash flow. They're taking a keener interest. Deregulation has helped that."

How much down?

McClure also sees a lot of seller financing — typically 25 percent down, with the balance to be paid over 10 years. The interest rate currently is between 8.5 and 9 percent.

"The idea is that a station will pay for itself out of its cash flow over a 10-year



Art Laboe

period," McClure said.

A dream for many radio employees has long been to own their own station. While that is becoming more difficult due to escalating prices in large and medium markets, it is still happening in small markets.

McClure pointed to Oregon as one of the states for independent operators to look at because many small-market stations are still priced "under \$1 million." Some of the deals McClure brokers are in the low-to-mid six figures.

In Tucson, Ariz., legendary DJ Art Laboe owns three Spanish-formatted stations. Tucson is now the number 60 market and growing. Laboe anticipates it will eventually crack the top 50, and that, he believes, will drive up prices.

"Owners (throughout the country) see that prices are escalating. Naturally, they want to escalate the prices of their stations, too," said Laboe. "Because of that, I think it's more difficult to buy any radio station anywhere."

Smaller operators need only take a stroll down Main Street.

Laboe, who in the 1950s was the first disc jockey on the West Coast to play rock 'n' roll music, thinks that buying a radio station is much like buying a house. "Just add some more zeroes," he said with a chuckle.

"If you go (to a lender) and say, 'How much will you loan me?', (the answer) depends on your collateral. If you have a good financial portfolio, you should be okay. If you're going to borrow most of the money, you'll have to show assets other than the radio station."

Sell your land

When radio stations are owned free and clear, those properties can be invaluable in collateralizing an additional purchase. Perhaps the most valuable source of income, though, is real estate — particularly land surrounding a transmitter site.

"We have tons of real estate," said Laboe. "I bought one transmitter site on 10 acres, another on five acres, and the third on four acres."

In Tucson, that's prime land for residential subdivisions. Houses are already going up close to one of Laboe's sites.

"It looks like the (development) will come up there," he said. "If we can find another transmitter site, we're going to make a lot of money."

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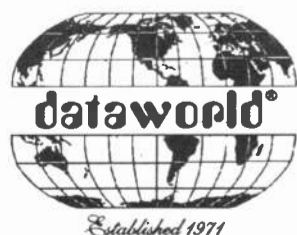
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World Radio History

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X 2.	WFAN	New York	35,100,000
3.	WINS	New York	29,300,000
X 4.	WXRK-F	New York	29,000,000
X	KIIS-AF	Los Angeles	29,000,000
X 6.	KRTH-F	Los Angeles	28,500,000
X 7.	KGO	San Francisco	27,800,000
X 8.	WCBS-F	New York	27,300,000
X 9.	KROQ-F	Los Angeles	26,700,000
X 10.	KABC	Los Angeles	26,600,000

NOTE: Revenue totals are gross with no trade. Network compensation is included if known. Estimates are based upon input from managers in each market, surveys sent to group CEO's and my own judgements and formulas.

5 DUNCAN'S RADIO MARKET GUIDE
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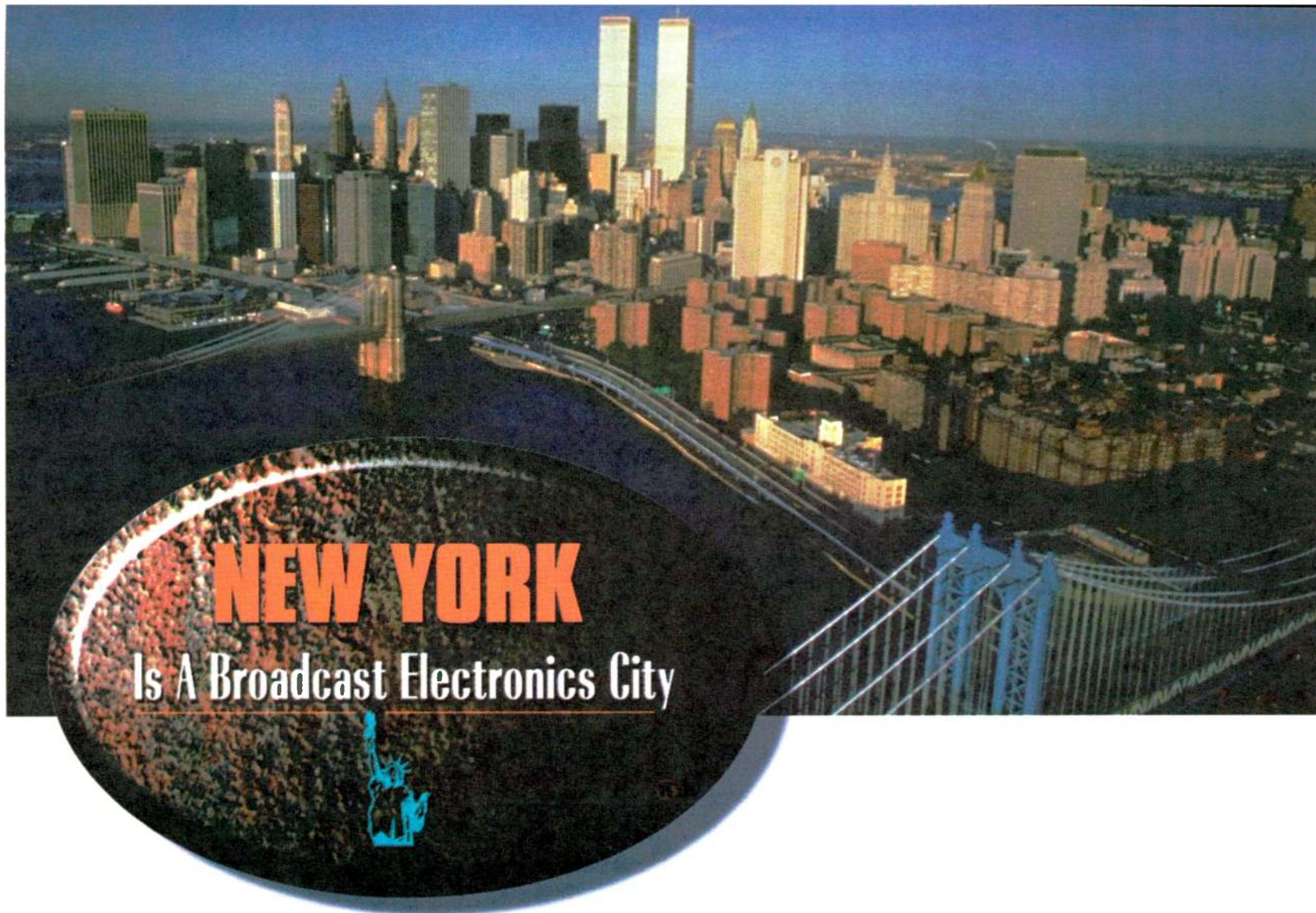


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PACIFIC RESEARCH & ENGINEERING

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World Radio History



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Vegas Is a Unique Radio Town

Sharon Rae

Las Vegas is the Big Show in gaming and entertainment. But among the neon lights and sleepless nights in the city of glamour and glitz lies one of the fastest-growing radio markets in the country.

Some 4,000 to 6,000 people per month move to Las Vegas. According to predictions, the number of hotel rooms will hit 130,000 by the year 2001.

Mike Ginsburg is the vice president and general manager of Jacor Broadcasting of Las Vegas, a company with four FM signals in Las Vegas: KWNR(FM) country, KSNE-FM soft AC, KBGO(FM) oldies, and KFMS-FM country. Ginsburg also serves as the chairman of the Nevada Broadcast Association.

"When I came (to Las Vegas) in 1988, I think it was market number 78," he said. "We've seen tremendous growth. We are now metro number 45. I have seen more changes and more professionalism come into this market ... with the recent arrivals of new owners and the talent of people they're bringing into town. It's phenomenal."

New owners abound, according to Ken White, the media reporter for the Las Vegas Review Journal.

"Probably the biggest radio news of the past year would be last year's deregulation," he said. "It seems like every week somebody is selling their station or buying one. All these stations under one banner. When the law came down where companies could own more than one station ... it seemed all of a sudden they were just starting to gobble them up."

White pointed to American Radio Systems' acquisition of several stations.

"It seems like they just kept adding stations," he said.

Tony Bonnici is vice president and general manager of Lotus Broadcasting, owner of four stations in town: KENO(AM) sports/talk, KORK(AM) big band (with a change to sports talk pending at press time), KOMP(FM) AOR, and KXPT(FM) adult rock. He also cited several recent media marriages in a town known for quickie weddings.

"We have two more big companies in town now," he said "... ARS with four FMs and a couple of AMs, and then Jacor, who had purchased from Regent (Communications), who are occupying four FMs."

Format changes

A few format flips have befallen the city of chance and circumstance.

"KVEG(AM) used to be a sports station ... That is now KXNT and is all talk," said Bonnici. "They have been very aggressive in talk and have picked up Rush Limbaugh from across-town talker KDWN(AM), and also picked up Paul Harvey. Regent flipped one of the country stations to oldies ... it was KEYV(FM), and that was switched to the oldies station KBGO. Now we have two oldies stations in the market ... and two country stations. ARS made some format changes as well ... it was Jams CHR (KJMZ) at the time it was purchased about a year ago, and it's now The Mix, hot AC," which is KMXB(FM).

One call letter change to note: KRRI(FM) is now KQOL(FM). It remains an oldies station.

According to Bonnici, one ARS station, KMZQ-FM, appears to have softened its sound to compete with Jacor's KSNE-FM.

Apogee Communications has purchased KKLZ(FM) from Max Radio. The format is classic rock.

Top stations

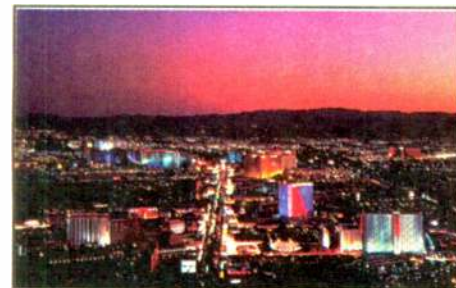
According to reporter White, there's no clear domination in the market.

"With all these stations coming in, they just keep carving out more pieces of the pie ... so everyone just keeps dropping," he said. "Like AC ... that's divided up among three or four stations. When that happens, the numbers tend to drop.

There are now two alternative rock stations ... for a while, there was one, and they were just kicking everyone's butt in 18-34, and now they are just almost splitting the audience ... like the oldies stations. There used to be just one that just cleaned up in that audience. Now there are two and it's all cutting back again.

"So every time someone comes up and challenges a format that's been dominant and hasn't had much competition, it's like it automatically splits the audience."

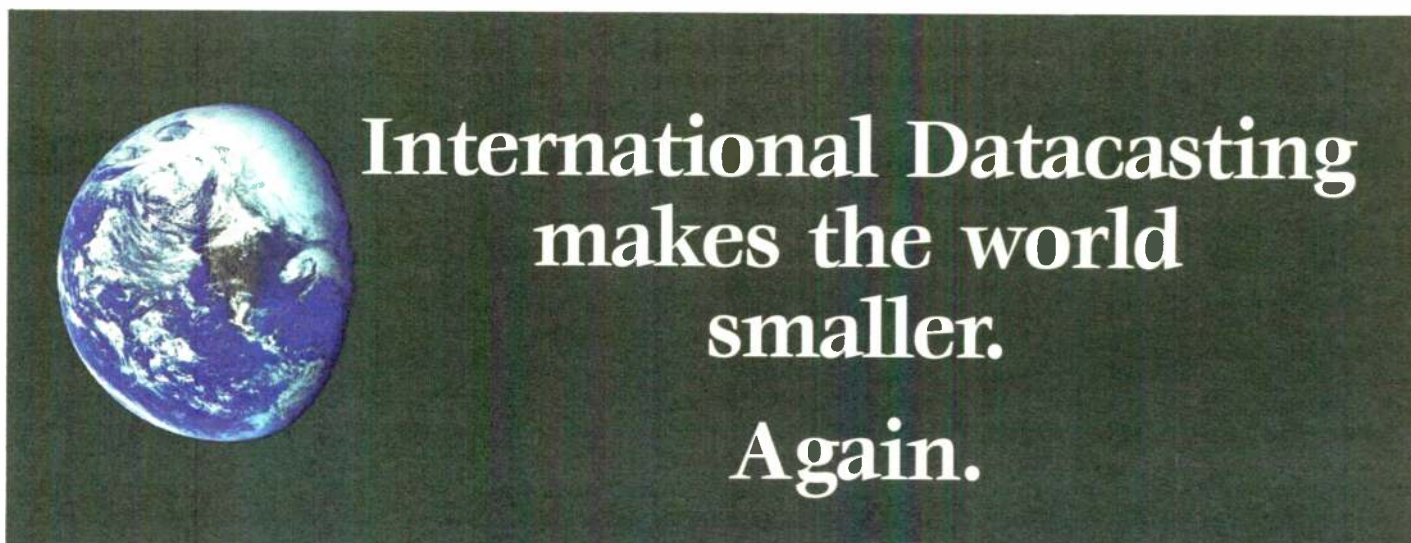
According to fall 1996 Arbitron data, the leading station 12+ was top 40 station KLUC-FM with a 9.3 share. Nostalgic KJUL(FM) pulled in the number two ranking with a 7.0. KSNE-FM



soft AC checked in with a 6.9, KMZQ-FM AC had 5.6, and the leading country station KWNR rounded out the top five with a 5.5.

As for action in the morning, Howard Stern was tops in Vegas on alternative rocker KXTE(FM) with a 9.0. CHR KLUC-FM and morning man Jay Casey were number two with a 7.9, followed by soft rocker KSNE-FM at 7.1. AC

See VEGAS RADIO, page 26 ▶



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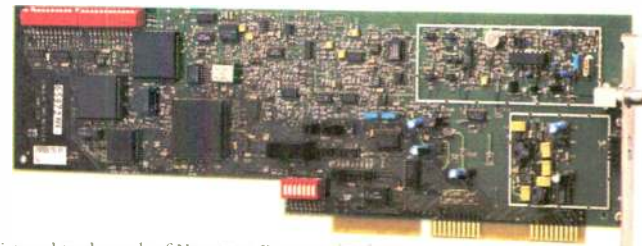
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Radio in the Desert

► VEGAS RADIO, continued from page 25
KMZQ-FM with a 6.3, and country's Tom Jordan on KWNR.

AOR station KOMP(FM) is hoping to make a morning monster with the addition of rocker Kevin DuBrow, lead singer of Quiet Riot, to the morning team.

And how's this for traveler's information radio? KXNO(AM) at 1140 kHz is a 50-kW station that caters solely to travelers, with a 24-hour diet of event and entertainment info.

It's a sure bet that running radio in what Arbitron traditionally considers a "problem market" requires more than the luck of the draw.

Jay Phillips is the program director of

KFMS-FM country.

"Las Vegas has been one of the problematic markets ... because of the influx of the number of people in the market and the number of unlisted households," he said. Sixty-eight percent of the phone numbers in Vegas are unlisted.

"Another unique thing about the market, in my opinion, is that nobody really has what I would consider a large cume for the population size, and TSL (time spent listening) really isn't huge here," said Phillips. "Maybe because of all there is to do in Vegas."

"Vegas radio is unlike radio anywhere else in the world," said Ginsburg. "If I was sitting in Peoria and I did a \$10,000

cash giveaway, it would turn some heads and I'd see some ratings go up. But in Vegas ... shoot, they're giving away \$10 million for pulling a \$3 slot for Megabucks. So you don't promote radio stations in Vegas they way you might promote them elsewhere in the country ... I think radio, being a personal media, still has to touch people."

Ginsburg called Vegas radio a "distracting" market, and a tough one to survey with many variables.

"It's a very private community," he said. "When I do music research ... a fielding study ... it always runs longer than it was going to run. The last fielding study we did for perceptual was in the field six days longer than originally intended ... just to get through all the screening and to get the response rates you need."

Ginsburg said the latest technology is one way to stay on top of the game. He cited the use of RDS in promoting his stations.

"We're using RDS for billboards," he said. "We are the first country station in the world to do so ... I have a billboard down on Sahara that says 'Now playing on New Country 95.5' and it reads out the name of the song and the artist."

Tony Bonnici shelled out some big bucks to make Lotus' two FMs into "highway" stations.

"What that means is, we've moved our towers to a higher mountain ... so people coming in from Los Angeles and the Utah area will reach our stations long before they get to Las Vegas," he said. "It doesn't benefit ratings at all ... the major reason we did it was for advertisers. Casinos can advertise on our properties ... we use it to promote hotel rooms and restaurants as people are driving in."

The big shots are in town

Top-notch broadcasters and regulators arriving in town shortly for the NAB show presumably will have a special interest in what they hear on their radio dials. But radio managers in Las Vegas don't expect any local programming changes as a result.

"It's business as usual," said Ginsburg. "Actually, when the NAB comes to town, and the FCC, ... it's healthy. We used to have

Las Vegas has been one of the problematic markets ... because of the influx of people and the number of unlisted households.

— Jay Phillips, KFMS-FM

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Scott Studios' Spot Box

At last! A commercial player that *works just like carts*, but with digital audio that *sounds like compact discs*.

It's Scott Studios' new *Spot Box*. It's the *first* hard disk "cart" replacement that *jocks really like!*

It's *easy to use*: You get four Start buttons for four recordings, just like a quadruple deck "cart" player.

The Start button clearly counts down the remaining time of each cut. Every deck shows "bargraph" VU levels.

When a "cart" finishes, the label and buttons turn grey to lock out accidental re-play. It can air again with a touch of the Replay button (at the lower right). If there are more than four "carts" in the set, the "on deck" spot moves from the fifth line (at the right of the time and date) to the grey deck that had played. The Spot Box can also remote start CD players.

The Manual-Auto button (at the right of each label) lets you start each spot manually or have the Spot Box smoothly start the next one itself. Automatic sequencing can also be turned on or off globally, by categories or shifts.

Pause buttons can stop (and resume) playback of any cut. During a Pause, the Start button can replay that recording from the beginning.

Each deck has a Fade button. It helps if you need to fade something out gracefully with one touch.

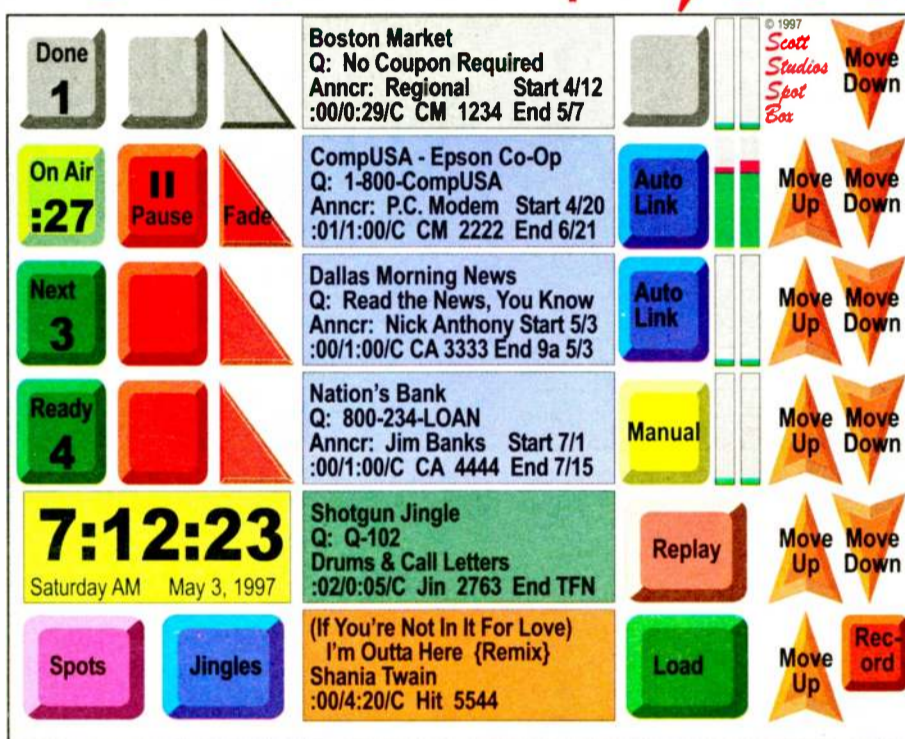
The Spots and Jingles buttons at the lower left take you to a "Wall of Carts" screen that shows *all* of your hundreds of recordings. You can jump immediately to whatever you want by touching the first letter of its name on the large alphabet at the top of that screen. Pick and play it quickly in any "cart" deck.

As an option, we can automatically bring logs into the Spot Box from your traffic computer. Then, after the spot set has finished, the Load button at the lower right automatically brings in the next break.

You can quickly rearrange the order of any recordings with the Up and Down Arrows.

Scott Studios' Spot Box not only *sounds better* than any "carts" you've ever heard, its labels *look better* and are easier to read than any "carts" you've ever seen!

You get four legible lines of useful label information: Names, numbers, out-cues, announcers, intros, lengths,



Here's a reduced size view of Scott Studios' 5"x8 1/4" Spot Box. You get easy access to hundreds of commercials, jingles, sounders, comedy and other recordings. All audio is CD quality digital from hard drives.

endings, copy info, start and end dates and times, schedule times, and anything else you want. Labels are even color coded. When you have several cuts rotating as one number, you see exact lengths. Both the name and out cue match the exact cut that plays. The Spot Box even rotates recorded tags.

If you have several stations in one building, record each spot only once. It's instantly playable in *every* desired studios' Spot Box, without re-dubbing or retyping labels. Cuts can be locked so they only play on designated stations or shifts.

You also get printouts showing *exactly* when each spot plays!

Best of all, Scott Studios' digital audio is *affordable*. A "four-deck" Spot Box player storing 600 minutes in stereo starts at \$6,000. You can record and edit spots or phone calls in the air studio during songs for only \$1,000 more. A production studio recorder-editor is \$5,000, and it can even go on-the-air if needed. 600 additional minutes of stereo storage is only \$250. Larger screens and a variety of backup options are available. At Scott's low prices, you can afford as much storage and redundancy as you want.

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these modulation wars ... where the guy next door would be at 110 percent, so you'd go 115 percent ... next thing you know the market is cooking along at 120 percent. So when the FCC came to town, everybody would tune back down to 105 percent."

"On music stations, our priority is clarity," said Bonnici. "It better sound CD quality as much as possible, because that audience has a great ear."

Ginsburg agreed. "Everybody wants apparent loudness, but not at the cost of sacrificing clarity. We all try to get state-of-the-art excitors or audio links. So if we can be clear and we can be loud, that's where it's at."

"When I listen to the market today, I've got one of the worst signals for apparent loudness. The market is beating me to death right now, but it hasn't really affected my ratings ... the signal is so clear."

Broadcasters in Las Vegas face a frustrating, yet flattering problem.

"GMs, PDs come to town ... here to relax or for conventions such as the NAB ... and of course they listen to the radio," said Bonnici. "They are always trying to hire your people."

Bonnici's radio rival Ginsburg seems to be on the same page on this subject.

"As a Vegas-based broadcaster, I'm very aware of when they hit town," Ginsburg said. "They will try to hire my better employees, those devils."

**In the professional
MiniDisc market,
there are the haves.
And the have-mores.**



Allow us to state the obvious. The new MDS-B5 Digital Pro MiniDisc Recorder/Player has more high-end features than any other MiniDisc cart available today. And they all come standard, not as costly options. The MDS-B5 is the smart choice for radio, television, theater, and other applications requiring professional sound quality. Its

flexibility and easy operation make it ideal for sound effects, commercial messages and station promos. And high speed disc cloning is perfect for program distribution or safety back-ups.

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SONY

Circle (30) On Reader Service Card

World Radio History

This Boom Town Just Keeps ON Growing

Sharon Rae

Start spreading the news! The Las Vegas construction boom continued over the past year, and NAB attendees will notice several significant additions to the city's skyline.

"The big one is New York, New York," said David Renzi, feature writer for the Las Vegas Sun. "It's opened across from the MGM ... it's a miniature version of New York City."

New York, New York is a 2,035-room hotel and casino. It's a joint venture of MGM Grand Inc. and Primadonna Resorts. It opened in January and has brought a slice of the Big Apple to life in Las Vegas, with 12 replica towers of Manhattan landmark structures. They include the Empire State Building and the skyscrapers of AT&T, Chrysler and CBS. Billed as "the greatest city in Las Vegas," New York, New York is further distinguished by a 150-foot replica of the Statue of Liberty and a 300-foot long, 50-foot high replica of the Brooklyn Bridge. Themed interior areas include Park Avenue, made up of retail shops; the Financial District, where you'll find casino cashiers' cages; Central Park, the main casino; Times Square; Little Italy; and Penn and Grand Central Stations.

"It's really eye-catching," said Michael Paskevich, entertainment writer with the

Las Vegas Review Journal. "Fun and cartoonish and typical crazy Vegas. Its very well done."

The \$460-million facility at the corner of Las Vegas Strip and Tropicana Avenue also includes a high-speed roller coaster. The "Manhattan Express" twists through the perimeter as well as the center of the property at a maximum speed of 67 miles per hour.

High and wide

Also new since the radio industry last came to town is the Monte Carlo Resort and Casino, on the Strip at Tropicana. The \$344-million Victorian-themed building,

See SKYLINE, page 29 ▶



Among the newest behemoth casino/hotels are the Monte Carlo, New York, New York and the Stratosphere, shown left to right. With the addition of these new entertainment destinations, Las Vegas has grown to 101,106 hotel rooms.

THE DAWN OF NEW REMOTE TECHNOLOGY

There's a new age of remote broadcasting - pioneered by MARTI Electronics - with technology so advanced it will revolutionize radio, again.



RBS-400

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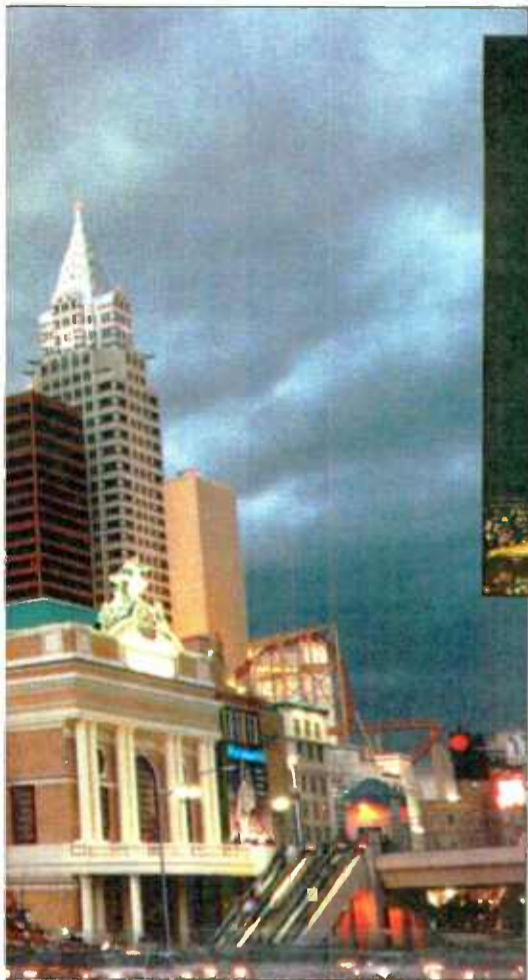
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Circle (31) On Reader Service Card

World Radio History



► SKYLINE, continued from page 28
 styled after the Place du Casino in Monaco, features 3,002 rooms, a 90,000-square-foot casino and a retail shopping area. Highlights include the Monte Carlo Pub and Brewery, one of the largest brewpubs in the nation, and the 1,200-seat Lance Burton Theater, featuring architecture in turn-of-the-century style. Monte Carlo is a joint venture of Circus Circus Enterprises and Steve Wynn's Mirage Resorts.

The staggeringly high Stratosphere Tower, Casino and Hotel, which opened shortly after NAB left town last year, is listed as America's tallest free-standing observation tower, and the tallest building west of the Mississippi River. The \$550 million structure, owned by Grand Casinos Inc. of Minneapolis, is located on the Las Vegas Strip at Main Street. NAB attendees watched the mysterious gray concrete legs grow into the sky over several years.

"It has definitely changed the skyline of Las Vegas," said Steve Rypka, technical director of entertainment for the Stratosphere Corporation. "It's become a new icon of Vegas in a lot of ways. We have a 97,000-square-foot casino, a showroom, several lounges, buffets and restaurants — all the stuff that goes along with a standard casino, and it's a great destination resort."

Yipes!

Rypka said "the pod" is a 12-story building that sits on top of the tower.

"It has a 360-seat revolving restaurant up there, indoor and outdoor observation decks ... and even thrill rides," said Rypka, referring to the world's highest roller coaster, named the High Roller, and a G-force-defying thrill ride at the top of the tower called Big Shot.

"It's kind of like reverse bungee jumping," Rypka said of Big Shot. "It shoots you up at four Gs, about 200 feet into the air in 2 seconds, then it pulls you back down to negative Gs. It's very exciting."

The number of big Vegas properties has been growing at an astounding rate. Another addition to this city of imagination and innovation is the \$200 million, 41-floor

structure expansion to the Rio Suite Hotel and Casino, overlooking the Strip.

The add-on brought 1,028 rooms to the grounds, along with what's touted as the city's first wine-tasting room in a casino, the Napa Wine Cellar & Tasting Room. An upscale shopping area rounded out the development.

The world's biggest gaming resort town features other, more familiar entertainment nearby, including The Guinness World of Records Museum, Ron Lee's World of Clowns, The Las Vegas Art Museum and the Debbie Reynolds Hollywood Movie Museum. If casinos and conventions aren't your style, you can visit numerous natural and man-made wonders, including Hoover Dam, Red Rock Canyon and Mt. Charleston, all within 35 miles of town.

Now here's what you won't see: The historic Hacienda Hotel, one of the first

hotels on the south end of The Strip, was blown up New Year's Eve to make way for new development.

Circus Circus Enterprises plans a joint venture with Four Seasons Regent to build a 400-room, non-gaming hotel on the property called Paradise.

The landmark Sands Hotel Casino was also a victim of the times over the past year. The 44-year-old building was closed in June 1996 and its tower imploded in late November to make way for a \$1.8-billion, 6,000-suite Venetian-theme megaresort. "It was the last of the old great Vegas properties on the Strip," said columnist Paskevich.

If you didn't make it to Las Vegas last year, you'll also notice that the old Landmark tower, directly across the street from the Las Vegas Convention Center, is now a parking lot. The building was demolished in November 1995.

Surround Yourself with Calrec Capability

Following the success of the Calrec S and SR ("S" Radio) consoles, the new

S2 Surround Console offers greater functionality within the same compact, light weight construction. The combination of full broadcast facilities, unrivalled audio specification and excellent size and weight characteristics have made the S Series ideal for use in studio and mobile

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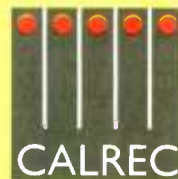
conventional audio sub groups. The Calrec no compromise philosophy results in no sacrifice in performance, uniquely giving low noise and high headroom, yet continuing to provide all the features a changing broadcast environment demands. The S2 ensures that your capability to meet the demands of your clients is never in doubt.



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Circle (32) On Reader Service Card



Radio Exhibitors Are In Transition at NAB

Matt Spangler

With about 20 radio/audio companies exhibiting at the Sands Expo Center instead of the Las Vegas Convention Center, and with a major exhibitor moving its radio display to the South Hall of the LVCC this year, one might ask if the radio portion of the floor is becoming too diffuse or losing its focus.

The companies moving to the Sands, site of NAB MultiMedia World, seemed to have done so quite willingly. Most

managers said they felt overwhelmed or underexposed next to the titanic booths in the general television/video/film hall.

"We're not too concerned about being away from the convention center, because that's such a zoo anyways," said Kevin Turnbull, trade show coordinator of Tannoy T.G.I. North America.

"What has happened over the years," said Joe Steinberg, broadcast sales manager of Herman Electronics and member of the NAB Exhibitor Advisory Committee, "is that more and more people are getting larger booths, so ... naturally the larger booths have priority over the smaller booths, and there's less of the smaller booths available. Consequently ... the geographical location of the smaller booths has gotten worse and worse ... You'll end up with more visibility there (at the Sands) than if you were in a 10 x 10 at LVCC."

Fellow committee member and Vice President of Neutrik USA Jim Cowan said the biggest concern last year was transportation between LVCC and the Sands. He said a larger force of shuttles between the two locations will be used this year.

The companies moving to the Sands seem to have done so quite willingly.

Because the Sands floor is less dense, these companies expect to get more attention from a variety of markets. And TV attendees do get to the Sands. Turnbull said T.G.I. benefited greatly from the interest from video folks at its Sands booth in 1996.

Inevitably, some radio-interested attendees will wonder where these companies are. At JK Audio's booth at the Sands last year, President Joe Klinger said, "We certainly had people that had to look for us and wondered why we weren't over there (in the radio/audio hall), but at the same time we had a lot of traffic."

Turnbull said T.G.I. had hoped to be placed with other audio companies, but it wasn't in the cards.

Overall, Sands exhibitors seem pleased. "Naturally, everyone has trepidations when you move into a new place, and the people last year did, but afterwards we contacted them and they were very happy," Steinberg said.

Harris in the 'transitional' hall

In each of the last two years, Harris Corp. purchased booth space on both the radio/audio floor and in the larger South Hall, often called the TV hall. Harris will not exhibit in the radio/audio hall in 1997. The company does not want to lose its radio/audio following; in its pre-show literature, it urges attendees to catch "the

See SANDS, page 37 ▶

Who Knows what lurks in the minds of the creators at SMARTS Broadcast Systems? The Spider Knows!

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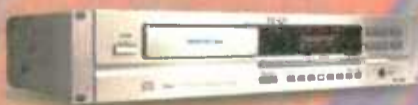
DCM-340 5 CD Changer



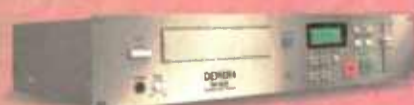
DN-610F CD/Cassette Combi-Player



DN-2500F Double CD Player



DN-600F Single CD player



DN-650F Single CD Player



DN-1400F 200 CD Changer
DRD-1400 200 CD-ROM Changer



DN-951 FA CD Cart Player
DN-961 FA CD Player



DN-2000F MKII Double CD Player

More, Better Internet Sessions

Alan Haber

Hold on to your cyber-hats. An unprecedented 49 sessions at NAB '97 will deal, in one way or another, with the Internet. Has the NAB gone 'net-crazy?

No, the association is simply responding to its members' needs. Twenty of the 49 sessions are grouped together under the banner of the first-time Internet Business Conference (check on-site at NAB '97 for times and locations). Other sessions will take place during several conferences: Radio Management, Television Management, Broadcast Engineering, MultiMedia

World New Media Professionals, Broadcasters' Law and Regulation, and Communications and Connectivity '97 — Electronic Distribution.

Learn more

The lone Internet-related session on tap during the Radio Management Conference is the Internet Workshop on Monday. This basic session is "almost specifically designed for the small-market broadcaster who has very, very little knowledge of the 'net at all" and wants "to learn a little bit more about it," said John Marino, NAB vice president, science and technology.

The diverse slate of sessions during

the Internet Business Conference (IBC) will focus on business applications and opportunities offered by the Internet and intranets, such as how to increase business revenue and efficiency. The sessions are targeted to small business owners, managers, entrepreneurs, corporate executives, engineers, attorneys, and program and production specialists, among others.

The NAB, said Marino, looks at the Internet "as a way to enhance the broadcasters' business." With its Internet sessions, according to Marino, the association is saying, "Here are some experts, here are some folks who we're bringing in who have done these things."

Attendees can expect to see case studies that pinpoint things that are working for stations on their sites. Attendees "can look at these things and say, 'Maybe they'll work in my market,'" said Marino. "'Maybe (they're) good ideas and maybe I can start implementing (them) when I get back home.'"

Something interesting

One of the IBC sessions is "Internet Site Design: Do It Yourself or Send It Out?" on Saturday, April 5. Marino said it is targeted to "folks who are just starting out. They want to put together a site, they think it might be something interesting they'd like to get into, but they're not sure how to do it."

Another session, "Great Expectations: A Reality Check," also on Saturday, will examine the realities of settling into cyberspace. "You've got to really put the effort into it to develop the site and get the expertise to focus it in the direction that you want to go in," said Marino. "Maybe take it by bits and pieces. You can't expect to put in a site and all of a sudden, bang, your ratings are going to go sky high."

A Monday session called "Trends in Internet Technology" looks to be a must-attend for station personnel charged with developing a website that must compete for attention among listeners, and with competing stations. Expect to hear plenty about trends and where technology is going during this broad session. The moderator is Donald Heath of the Internet Society in Reston, Va.

Attendees will be given a "futuristic look" at Internet technology, Marino said.

Peggy Miles of Intervox Communications will moderate a session called "Webcasting: Is It Ready for Prime Time?" on Tuesday, April 8. It will tackle a topic that some believe points to the immediate future of broadcasting. Demonstrations of technology will be offered.

"When you look at the aspect of how technology is progressing, how the hardware is progressing, the new compression technologies and so forth," said Marino, "it just keeps getting better and better, so it may be ready for prime time very shortly, or could be ready now. That's what the experts will talk about."

Other sessions

The Internet Business Conference includes some other interesting sessions. Be sure to consult the NAB '97 program guide for the times and places.

- "Enhancing Your Business with Intranets": Attendees will discover the benefits of having an intranet. "For the obvious reasons of ease of access, for use of common databases and so forth, it makes a lot of sense," said Marino, Sunday April 6.
- "Conducting Market Research on the Web": Expect to find out how to use the Web to a station's best advantage. Insight will be provided into the types of software available for conducting research on the 'net, Tuesday April 8.
- "Branding in Cyberspace: Success Stories on the Internet": Nothing succeeds like success, so attendees should come away from this session with some good ideas for their sites, Wednesday April 9.
- "Using the Web to Increase Ratings": Find out how to provide more visibility for your station, Thursday April 10.

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Our Sales Manager will make sure your account gets the attention you deserve. And with a larger sales staff we will respond quickly to your needs.

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More support! We have added a broadcast engineer with 15 years of experience to our staff to help your engineer configure the system.

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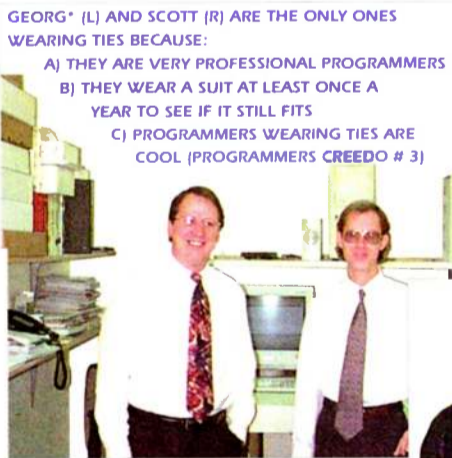
JD (HARDWARE SUPPORT) IS STARING AT A SILENT PHONE BECAUSE:

- A) OUR SYSTEM IS JUST THAT GOOD
- B) HE REALLY WANTED TO BE A MAYTAG REPAIRMAN
- C) KEVIN TURNED HIS PHONE OFF AGAIN



GEORG* (L) AND SCOTT (R) ARE THE ONLY ONES WEARING TIES BECAUSE:

- A) THEY ARE VERY PROFESSIONAL PROGRAMMERS
- B) THEY WEAR A SUIT AT LEAST ONCE A YEAR TO SEE IF IT STILL FITS
- C) PROGRAMMERS WEARING TIES ARE COOL (PROGRAMMERS CREEDO # 3)



* YES, THAT IS HOW GEORG SPELLS HIS NAME.

EVEN IF YOU'VE CALLED BEFORE— CALL US IN '97

JEFF (ENGINEERING SUPPORT) IS POINTING TO A MAP BECAUSE:

- A) HE IS POINTING TO OGALLALA, NEBRASKA THE HEADQUARTERS OF PROPHET SYSTEMS
- B) WE CAUGHT HIM PRETENDING TO BE A TV WEATHERMAN
- C) WHERE THE HECK IS SOLDOTNA, ALASKA ANYWAY?



COLLEEN IS A GREAT OFFICE MANAGER BECAUSE:

- A) SHE USES 20-YEARS EXPERIENCE TO KEEP PROPHET SYSTEMS ORGANIZED
- B) SHE STARTED WORK WHEN SHE WAS 3 (SEE ABOVE)
- C) 5 KIDS— 'NUFF SAID!



KEVIN'S OFFICE IS FULL OF WOLF PICTURES BECAUSE:

- A) PROPHET SYSTEMS IS LIKE A WOLF-INNOVATIVE AND AGGRESSIVE
- B) PLEASE— DON'T GET HIM STARTED ON WOLVES!
- C) ALL OF US THINK HE WAS RAISED BY WOLVES



TODD (SALES) IS GETTING READY TO LEAVE BECAUSE:

- A) HE IS LEAVING TO GIVE A DEMONSTRATION
- B) OUT OF SIGHT, OUT OF MIND (SALES RULE #1)
- C) IT IS 5 O'CLOCK— WATCH OUT!



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Make Money From Your Tower

W.C. Alexander

Many stations are looking to their towers to produce additional income streams. With cellular, PCS, SMR, two-way paging and a host of other new radio services, demand for tower space is exploding. Couple this with the public's general disdain for towers, and existing sites become very attractive to radio service providers. A broadcast tower that has room available can become a valuable piece of "vertical real estate."

There is a lot more to producing revenue with a broadcast tower, however, than opening the gates and allowing renters to hang their antennas. Not least among them are structural considerations. RW readers already know about many of these issues, thanks to Troy Conner, who has addressed them in his column "Man of Steel" (see RW, Dec. 25 and Jan. 22).

Important issues

Before we can open a tower to renters, it must be studied by a structural engineer to determine what additional loading is possible. In some cases, we may be obliged to replace or upgrade guy wires, or add additional bracing at critical points along the tower structure. Don't neglect the structural considerations, or you may well find your main revenue source — the radio station — off the air, with its antennas at the bottom of a tangled pile

of red and white steel.

In addition to the mechanical issues, we must address the several RF issues before we can open our tower to tenants. First and foremost is RF radiation. The first step is to map the tower. If the tower supports a single FM antenna at the top, this is a simple matter of computing the distance from the bottom of the FM antenna to the point where the RF power density will be below the FCC/ANSI limit for occupational exposure.

To keep things simple, we can then draw an imaginary (or real) "no hazard" line at this point and not allow any tenant antennas at or above this point. More likely, especially in the case of high-power stations, this point will be quite some distance down the tower. We must develop a plan for power reduction during periods when workers will be on the tower in the zone between the no hazard line and the bottom of the FM antenna.

Where multiple broadcast stations are on the tower, mapping becomes more complex, as the RF power densities from the different antennas combine. In very complex cases, actual measurement may be the only safe way to get a handle on the RF power density picture on the tower. Tower work will require a power reduction plan involving all the stations on the tower. Note that the FCC requires



such a plan anyway, whether there are non-broadcast tenants on the tower or not.

The term "intermod" takes in a wide range of phenomena, but in the simplest terms, it describes the mixing of signals to produce other signals that cause interference to other spectrum users. Intermod has many potential sources, from loose or

rusty hardware or guy wires, to improperly tuned or filtered transmitters, to poorly designed receiver circuitry.

Keep your tower clean and well-maintained to prevent the tower from creating RF problems. This means keeping the tower paint in good condition, treating areas of corrosion, maintaining tight hardware, keeping all transmission lines properly installed and bonded to the tower, and removing all unused lines, antennas and hardware.

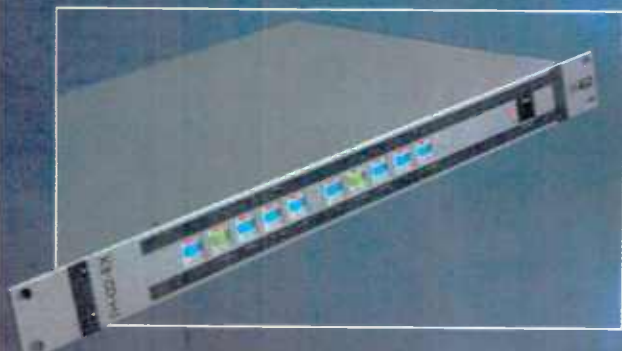
Intermod that occurs within transmitters is hard for a landlord to control, but we can often predict where trouble will appear through the use of intermod studies. Draft strong lease language to deal with intermod issues, spelling out specific remedies and who is responsible for implementing them.

Receiver intermod, in which strong signals mix within the RF circuits of a receiver, is also difficult for a landlord to control, but again, it can often be predicted. The best tool for dealing with it is the lease agreement, which should provide for treatment of affected receivers by the tenant.

There are other kinds of interference, such as spurious and harmonic radiation, that are impossible to predict. The lease agreement should include blanket language making the tenant responsible for resolving all such interference in a timely manner, with provisions to cause the offending station to stop operating within 24 to 48 hours should the

See TOWERS, page 34 ▶

AEQ Digital Hybrids show the way to lead



Digital Hybrid TH-02EX Mk-II

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- ▶ Works with one or two telephone lines.
- ▶ Second line provides true multiconference. Simultaneous speech between operator and two listeners.
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- ▶ Independent level control of Mic/Line input, auxiliary input and headphones.



Portable Mixer PME-02

- ▶ Three independent Mic/Line switchable inputs (XLR connector) electronically balanced and one unbalanced input (mini-jack) for line level portable stereo tape recorder.
- ▶ Independent input level control.
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EAS on the Floor

► EAS, continued from page 20
Association of Broadcasters.

Although flaws were encountered, Adamson said that months of EAS discussion and decision-making had made broadcasters in his state more aware of their role in emergencies, and many stations chose to monitor the local weather service to keep the public informed.

Meanwhile, the Society of Broadcast Engineers is soliciting input to determine whether a petition for an EAS rule change is in order and if so, what it should include.

SBE members who would like to add their input should visit the SBE web site (www.sbe.org) and look for the EAS link

"Do You Think There Should Be Changes?"

So far, SBE EAS Committee Chairman Leonard Charles has received hundreds of e-mail messages containing comments about the new system.

EAS in Vegas

At NAB '96, one hot topic was the EAS equipment that broadcasters were obliged to buy. Although there are no EAS-specific sessions scheduled at NAB '97, the subject will undoubtedly pop up at some of the conference sessions. Jerry Whitaker, chairman of the NAB Engineering Conference Committee, said EAS will probably be discussed at some

point during the Wednesday regulatory sessions and possibly during the "Emergency Planning: Staying on the Air" session.

On the floor, EAS wares will still be visible, but not a primary focus. TFT will display its normal line of EAS products, according to Parker. Gorman Redlich will show its EAS wares; Jim Gorman said the company will display a unit driving a sign board and character generator.

Sage Alerting will show its Endec box and accessories at the Harris booth; Sage President Jerry LeBow and Chief Engineer Harold Price will answer questions and demonstrate the products. Burk Technology will display its EAS unit along with its other products.

HollyAnne Corp. and MTS Communication Products do not plan to exhibit at the spring show.

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Plan Your Tower Lease Carefully

► TOWERS, continued from page 33
interference not be resolved in that time. Include an immediate shut-down clause to protect yourself against interference to any of your radio station's STL, RPU or other equipment.

Few stations could stand 48 hours of paging data in their STL.

AM towers can, in many instances, be used as lease towers, but they raise even more issues. Most AM towers are insulated, which prevents us from simply hanging antennas and transmission lines on them. Doing so will short out the tower at the AM frequency.

Include an immediate shut-down clause to protect yourself against interference.

Instead we must use an isocoupler, isocoil or other means of crossing the base insulator that does not substantially disturb the self-impedance of the tower at the AM frequency. Careful electrical bonding of transmission lines and antennas to the tower is important.

Sometimes we can add a wire "skirt" to an insulated tower and do away with the base insulator, making it much easier to add other antennas to the AM tower (see photo on page 33).

Grounded-base or "shunt-fed" AM towers accept antennas more easily, but they, too, require special attention in bonding antennas and lines to the tower.

Also, if we add too many antennas and lines, we can reduce the radiation efficiency of the tower, cutting the coverage of the AM station.

Directional antenna elements can be used, but the issues are many and complex.

Use a consulting engineer to evaluate the situation and devise a system of crossing the base insulator. A directional proof will be required, in just about any event.

All this and much more will be discussed in detail in an upcoming session at the 51st NAB Broadcast Engineering Conference, titled "Broadcast Towers: Maximizing your Vertical Real Estate."

■ ■ ■

Cris Alexander writes regularly for RW. The latest part in his series on AM antennas appears on page 80.

MANAGER'S NOTEBOOK

Twenty-five Tips for Success

Sue Jones

How do you manage effectively?

One of the promising NAB sessions this year will be a collection of 25 top management tips from seasoned general managers from all types of markets around the country.

Five of America's top radio managers will each share their five best management techniques to make any operation more efficient, better organized and more effective.

The stations' operations are as varied as the backgrounds of those who manage them. The panelists have experience in various parts of the country, different formats and market sizes.

Moderator Richard Mecham of KSL(AM) Salt Lake City takes an unorthodox approach to market strategy and sales, one that has yielded impressive results. He has taken his station from the 10th-billing station in his \$50 million market, to the top spot. He moved the station from \$3.5 million to \$7.5 million in billings.

He credits this dramatic improvement to ignoring the Arbitron ratings and instead selling the value of his news-talk format, showing advertisers how KSL can be more effective than a standard music format. Western International, one of the largest adver-

tising buying services, is telling advertisers to pay more than the current market rate for slots on KSL, supporting Mecham's concept of qualitative over quantitative advertising.

He also said he won't use advertising "gimmicks" like free trips and expensive gifts, considering them

contributing to the bottom line. He offers unusual but effective openness about the station's financial performance. This promotes team building and bottom-line results.

One Mecham method is to post sales goals for the station and each representative for the entire staff to view. The sales efforts are updated daily so everyone can see how the "team" is progressing.

Rewarding the entire staff with bonuses is another winning Mecham technique. Fifteen percent of gross profits are put into a gain share for the whole staff. Quarterly gain share bonuses of more than \$500 for every staff member are common.

Those managers who reward the entire staff instead of just the sales team have seen great improvement in morale, teamwork and — most important — increases in profitability. Employees like to know the contributions they are making.

Managers often think of the sales staff as the rainmakers, and overlook the money-saving efforts contributed by other staff. These efforts can contribute significantly to the bottom line, especially when members of the staff know they will be rewarded for thriftiness and careful resource management.

Pro-active ways to distinguish your

station from the competition are important. Successful stations identify community needs and find ways to meet them. Such efforts position them as community leaders and contribute to station ratings and profitability.

Find a unique niche

Mecham saw an opportunity to mount traffic cameras at strategic locations for an upcoming four-year highway renovation project that will alter traffic patterns on a busy interstate. His station also has the only airplane to report traffic conditions. Community monitoring and response has made his station the sole provider of traffic information. Needless to say, drive-time listeners will tune in.

Other panelists at "Twenty-five Management Techniques for Success" include Verna Green, WJLB(FM)-WMXD(FM), Detroit; Fred Murr, KBGO(FM)-KSNE-FM, Las Vegas, Nev.; and Lou Vito, WBLI(AM)-WPKO-FM, Bellefontaine, Ohio.

Topics will include the general manager's range of responsibilities including marketing strategies; sales techniques; formats; staff motivation and management; market nuances that can be incorporated into your plan to improve ratings and revenue; and ideas to improve radio's competitive edge over other media.

■ ■ ■

Sue Jones is a principal in a communications management firm located in the Washington area. Contact her at (703) 503-4999.

Successful stations identify community needs and find ways to meet them.

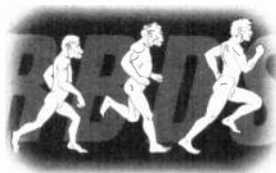
unnecessary after his sales staff explains the value of advertising on KSL.

Mecham's is not a typical sales pitch, and it seems to work. In six years, he turned around a station with a "who is my sales rep today?" problem, to one with a stable sales staff of 27 and almost no staff turnover.

Post goals

Staff motivation is another key to success. Mecham sees the whole staff

Third-generation RBDS technology

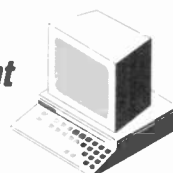


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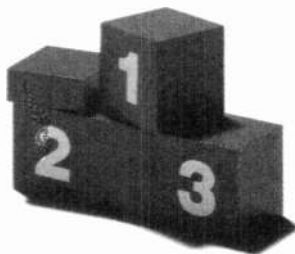
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* Power pack included (not pictured)



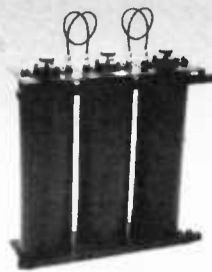
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READER SERVICE NO. 127

Sands, South Hall Have Radio Too

► SANDS, continued from page 30
digital bus" as "radio moves to the South Hall." But nestled among Sony and Hitachi, is Harris really bringing radio with it?

Dave Burns, studio product manager of Harris Corp., said the company is trying to avoid describing the South Hall as the "TV hall." He described it as a "transitional hall," where the company can hawk both its video and audio wares.

He said setting up, staffing and dismantling two booths over the past two

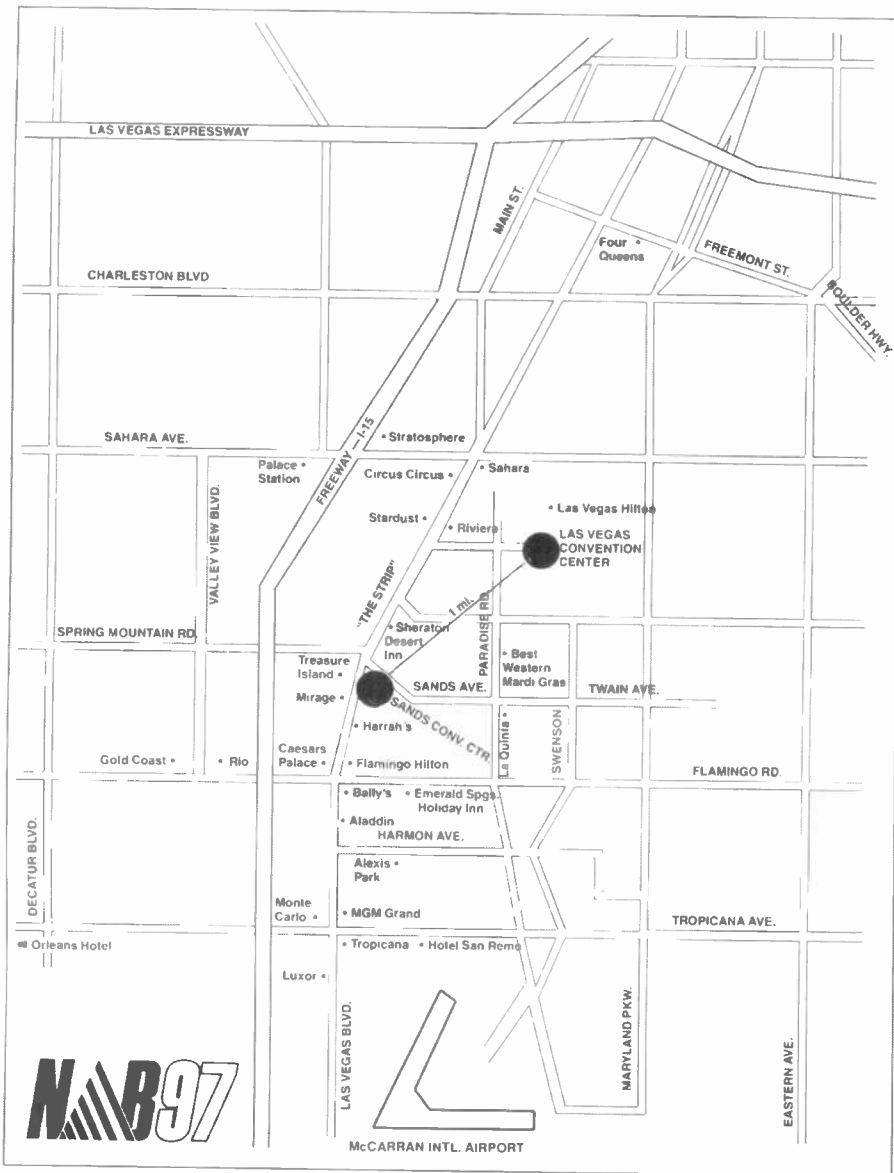
Because the Sands Floor is less dense, these companies expect to get more attention.

years had become too cumbersome. Also, Burns said, the new location of the booth is more accessible.

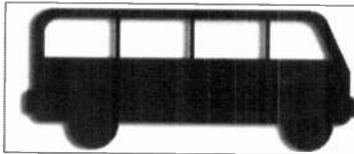
"When (attendees) come in the main entrance of the LVCC, they simply turn right instead of left and we're there," he said.

The company is not eschewing its radio constituency. Among its other radio-relevant products, Harris will show a new studio-to-transmitter link for compressed digital audio.

Burns emphasized the convenience of having audio and video products in one spot. "The combination of unique products in our booth is to be found nowhere else on the floor," he said.



To get you moving, NAB will offer a complimentary shuttle bus service to and from all official NAB '97 hotels, the convention center and the Sands Expo Center. Refer to signs in hotel lobbies for service schedule updates. NAB will also operate a bus service from the Grand Lobby entrance of the LVCC to McCarran International Airport on Wednesday, April 9 and Thursday, April 10.



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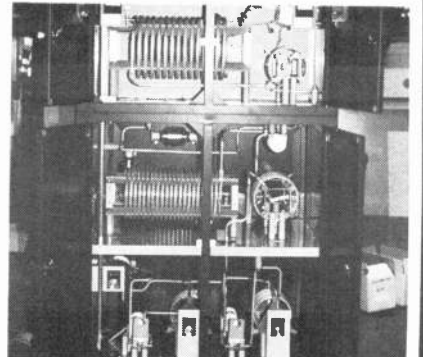


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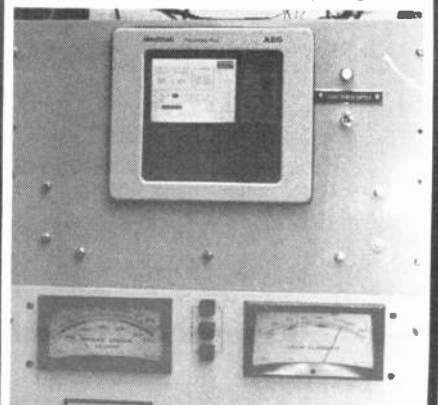
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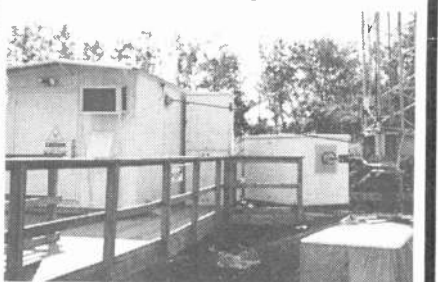
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READER SERVICE NO. 204

Baun: A New Direction for SBE

Alan R. Peterson

"There is nothing in here that you couldn't take and spend a whole day on," said Terrence M. Baun, CPBE and president of the Society of Broadcast Engineers, with enthusiasm.

Baun talked with RW about the upcoming Broadcast Engineering Conference at the Las Vegas NAB Convention, and the diversity of sessions and workshops for the professional broadcast engineer.

"The Telecommunications Act of 1996, the implications of the changes that have come out of that have been just unbelievable," said Baun. "It's getting real interesting."



Terrence M. Baun

The modern-day engineer must be an economist, information specialist and politician, as well as the keeper of the tools — a "systems type of person," as Baun puts it. The engineering sessions reflect this.

Political issues

"Look at the sessions," said Baun. "We start out on Sunday with 'Digital Sound Broadcasting: Testing and Regulatory Issues.' What do regulatory issues have to do with digital sound? Well, the determination of the system we will use for digital radio in this country is, in my opinion, as much a political issue as a technical one. That is something we as engineers just don't have any exposure to, and we have to understand it."

Baun understands a lot of engineers cannot be considered "management-type" engineers, which is why these sessions are so important. "Their opinions are being sought in ways that never would have happened years ago," he said. "There has to be a concept of how the system all fits together."

"Look at the Friday sessions," Baun said. "You have Emergency Planning and Maximizing Vertical Real Estate. Those are both business topics. You have design topics on Tuesday. If this industry were not going somewhere, do you think they would have a whole day devoted to designing things? That shows the direction the whole industry is going."

No longer in the back

"Quite frankly, if we didn't know what direction we're going in as far as, say, DAB is concerned, I would expect to see a whole lot of presentations on directional AM antennas," Baun said. "I mean, why would you want to spend two hours discussing the Ampliphase system from RCA today?"

This does not signal the end of the engineer's unique sphere of expertise, however. Baun said, "Once the digital thing is set, then we will see emphasis swing back to the RF side again, because we have to decide how to engineer the RF end of it."

In light of these changes, and the need for broadcast engineers to play a greater role, where are these new engineers coming from?

Baun cited a session held on that topic at the final World Media Expo last year. "The essential answer that came out of that conference was, 'We don't know.' I think it has to do with the evolving role of the engineer," said Baun.

Baun again stressed that an engineer is no longer the "back room guy" who repairs circuitry, but now must be a technology manager.

"You are not so much repairing things as you are deciding what is cost-effective to repair," said Baun. "You have to understand this is a system that you have to know all parts of. Not just the technical, but the political and the economic sides as well."

That is not to say the young amateur "ham" radio operator cannot come up through the ranks as in the past. But a present-day radio engineer must be much more than that. Baun is upbeat about the immediate future.

"I think this is an exciting time for engineering," said Baun.

"We are in the systems world here, and we have to continue our education. It's not so much knowing what value resistor to put in anymore, although that is helpful, but being able to integrate systems and put systems together that work efficiently."

"We have to look toward efficient operation in the digital future, wherever that may take us. I think the NAB and the SBE have put together a real good program from that standpoint."

■■■

Look to RW for news from and about the Society of Broadcast Engineers, including a new SBE quarterly column. Terrence Baun writes about the SBE's goals and programs on page 78 of this issue.

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Ride Easy At the NAB

NAB exhibitors go to considerable lengths to draw visitors to their booths. Among the better promotions we've seen: Clark Wire & Cable will give away a classic, restored 1947 Indian Chief motorcycle, valued at \$20,000. Clark will hold a drawing on the show floor, but contestants must enter by April 1. Call (800) 222-5348 to register.

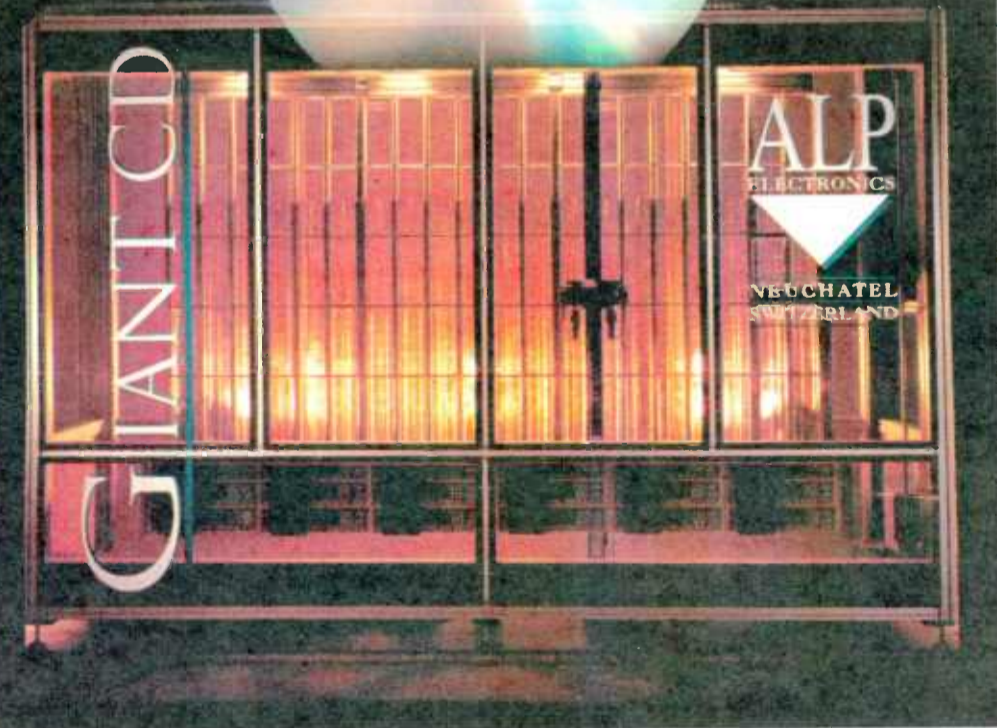
"We decided to give away the Indian Chief motorcycle because it is a beautiful machine that illustrates the best in American design and manufacturing," said company owner Susan Clark. All Clark products are American made.



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— Compiled by Sharon Rae

BEA Studies Industry Change

D.C. Culbertson

While the National Association of Broadcasters is still setting up for its annual convention at Las Vegas, almost a thousand educators and students will already be there actively participating in the annual Broadcast Education Association (BEA) Convention, which this year takes place April 4-7 at the Las Vegas Convention Center.

The BEA is a 42-year-old nonprofit organization for professors, students and industry professionals involved in teaching and research related to radio, television and electronic media.

It provides a broad range of services to members including publications, scholarships, awards and a website. The organization has 14 special interest divisions, each with its own newsletter, competition and opportunities for networking and research.

Partners with NAB

BEA is housed at NAB headquarters in Washington. It is not part of NAB but enjoys "reciprocal relations" with it, according to BEA Marketing Manager Lara Suliemenko. As a result, BEA members can attend the NAB convention on a complementary basis, and NAB members can do the same at the BEA convention.

According to convention program chair Dom Caristi, a mass communications professor at Iowa State, the main focus of this year's convention is the impact of multimedia on radio and television, and its possible developments and implications for the broadcast educator. Consequently, many sessions will specifically deal with aspects of this topic.

One session focuses on the impact of available international materials on broadcast teaching, and features panelists from England, New Zealand, Sweden, NBC and the BBC. Another looks at the possibility of converging technologies in class curricula.

"Teetering on the Cutting Edge" discusses the best ways to train students in new communications technology.

"The Future of Over-the-Air Broadcasting in the Age of Multimedia" examines the impact of new technologies on the future of broadcasting and the best way to prepare students for it. Yet another session examines the legal and ethical issues unique to new forms of media, such as the Internet.

One of the most significant recent pieces of legislation affecting broadcasting, the Telecommunications Act of 1996, will be the focus of a significant number of sessions. "Mega-mergers and the Future of Media Conglomerates" focuses on the increasing number of mergers since the passage of the Act, with a special paper dealing with recent mergers and acquisitions in radio by BEA Board President Norman Pattiz and Linwood Hagin of Youngstown State University.

Another session will evaluate the Act's impact after its first year from the point of view of cable, the FCC, broadcasting, universal service and the First Amendment. The following day, "Consolidation within the Radio Industry," moderated by the University

NAB and BEA will sponsor a joint Career Fair, where representatives will accept résumés.

of Tennessee's Dhyana Ziegler, will specifically consider the impact of the Act on the radio industry with regard to

content and diversity in programming. As a sort of companion piece, "Seventy Years of Electronic Media Regulation" looks back at and critiques the major laws governing communications over the past 70 years, beginning with a presentation on the Radio Act of 1927 by the University of Memphis' Marv Bensman.

Other sessions address purely practical issues for the broadcast educator, such as creative fundraising methods for student radio stations and broadcast education programs.

Several will deal with programming issues relating specifically to women, African-Americans, gays and lesbians,

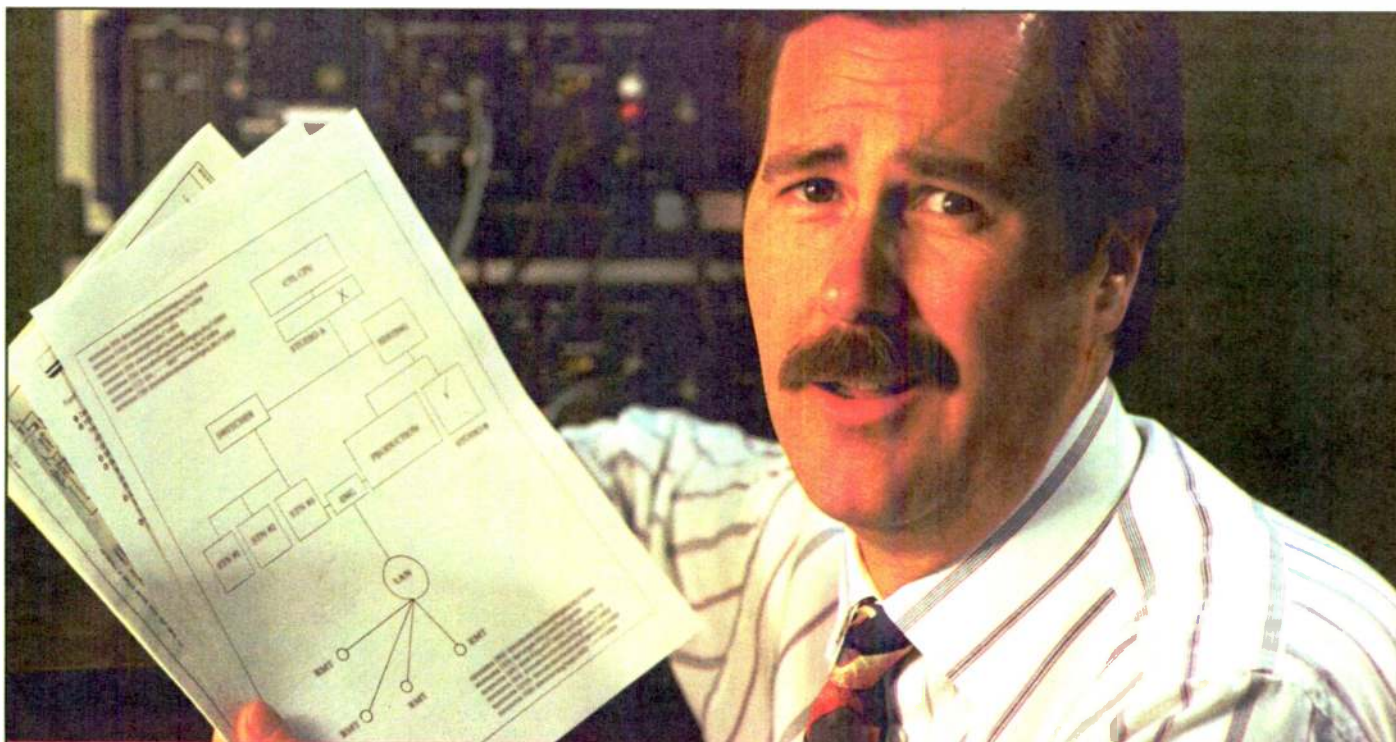
and children.

In addition to the sessions, the conference includes business meetings for and competitive papers from each of the BEA's interest divisions, plus workshops, demonstrations and a variety of student presentations including a Graduate Student Forum.

On April 6, NAB and BEA will sponsor a joint Career Fair, where representatives from radio and television stations will accept résumés and discuss career opportunities with interested job seekers.

A special exhibit featuring a wide variety of publishers, broadcast and cable representatives will run throughout the convention.

The convention will close with an awards luncheon on Sunday featuring keynote speaker Larry King.



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Circle (43) On Reader Service Card

NAB Hits Town

► NAB, continued from page 18
multimedia to virtual reality. The Internet Business Conference focuses on business applications and opportunities offered by the Internet and intranets.

New on the MultiMedia World exhibit floor this year are the SAT Pavilion, with the latest satellite and telecommunications products and services, and a demonstration of how intranets are revolutionizing business communications with employees, associates and customers as part of the "What's New! What's Cool!" Internet Theater.

Activities at the Sands alone would keep attendees busy. The LVCC, of course, will remain the focus of many

useful conferences. The Broadcasting Engineering Conference addresses the most recent developments in broadcasting technology. Expect plenty of questions about the future role of digital and the pace of computer hardware development.

Of interest to radio broadcasters will be two "Digital Sound Broadcasting" sessions on the testing and implementation of terrestrial and satellite digital broadcasting. Also on the digital side are the "Digital Audio Tutorial," which addresses the digitizing of analog signals, digital audio compression and storage and networking of digital signals, and "Audio Processing: Competing with

Digital Services," which will demonstrate uses of audio processing for radio broadcasting.

On the facilities side, "Broadcast Towers: Maximizing Your Vertical Real Estate" and two "Designing Radio Facilities" sessions will be helpful. For an update on the law with a technology spin, check out "Radio Technical/Regulatory Issues."

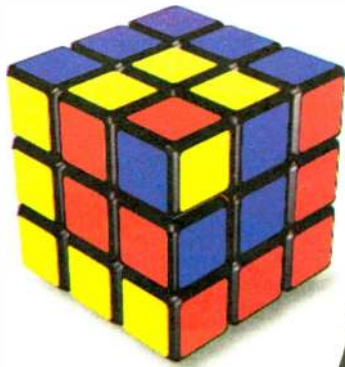
For the law from the lawyers' point of view, you'll want the Broadcasters' Law & Regulation Conference. A variety of regulatory issues, from duopolies, LMAs and other ownership changes, to EEO rules, antitrust compliance and music licensing, will be touched upon in the various sessions.

Those interested in any facets of radio management, programming, promotion and production, should attend the Radio



Management/RAB Sales & Marketing Conference. Session highlights include the "Small/Medium Market Idea Swap," a forum for managers, "Tower and Subcarrier Leases Made Simple," "The State of Radio Sales" and "Positioning Radio with Newspaper Advertisers."

See page 49 for a sampling of NAB sessions that are of particular interest to radio attendees.



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07:16:42 07:20:36 01:35 JUNE 12, 1997 THURSDAY

1 TOY SOLDIERS MARTIKA 0:34 03:11

2 MAD ABOUT YOU STING 0:32 02:22

07:15:33 MAD ABOUT YOU STING 3:54 CUE 1=0:08 2=0:21 3=0:32

07:19:27 CAN'T HELP FALLING IN LOVE ELVIS PRESLEY 2:58 CUE 1=0:00 2=0:00 3=0:06

07:22:25 I WANT TO KNOW WHAT LOVE IS FOREIGNERS 4:51 (4:55) CUE 1=0:00 2=0:08 3=0:14

07:27:20 COMMERCIAL BLOCK 7:25 0:13

07:27:33 WILLY USE A BILLY BOY E-ROTIC 3:41 CUE 1=0:00 2=0:00 3=0:00

THE WINNER TAKES IT ALL ABBA 4:53 CUE 1=0:00 2=0:14 3=0:36

- * A-HA: THE SUN ALWAYS SHINE ON T.V. - 5:03
- * A-HA: STAY ON THESE ROADS - 4:42
- * A-HA: HUNTING HIGH AND LOW - 3:44
- * A-HA: CRYING IN THE RAIN - 4:05
- * A-HA: THE LIVING DAYLIGHTS - 4:05
- * ABBA: THE WINNER TAKES IT ALL - 4:53
- * ABBA: SUPER TROUPER - 4:12

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K ASSIGNED
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15:03:38 Road Bays (Beats Circle)
15:06:29 Club Bays (U 90)
15:09:55 Pure Get A Little Something Fr
15:13:27 Don't Give Up On My Heart
15:16:15 COMMERCIAL
15:20:15 Scavenger's World (Scavenger J
15:22:41 Hound Around (Bobby Drex
15:27:11 Wake Up Boal (The Roo Plac
15:30:11 WEATHER
15:32:11 Come Little Sage (Dantele F
15:34:52 The Best of Jimmy Fallon

Clocks
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Distinguished service

ABC news correspondent and anchor Barbara Walters will receive the 1997 Distinguished Service Award at the All-Industry Opening. The award recognizes a broadcaster "who has made a significant and lasting contribution to the American system of broadcasting." Though she is best known for her work in television, Walters has also done work in radio. During her affiliation with NBC, she contributed on a regular basis to the NBC Radio Network.

Popular Chicago radio personality Wally Phillips will enter the Broadcasting Hall of Fame at the NAB Radio Luncheon. For almost 40 years Phillips was the morning drive person at Chicago's WGN(AM). The NAB described him as "one of that small legendary group of pioneering 'morning men.'" We profile him on page 20.

The NAB also will honor the winners of its Crystal Radio Awards at the Radio Luncheon. These awards are given to 10 stations for what Fritts called "their outstanding community involvement." The Crystals also help NAB "to promote radio's exemplary community service to those on Capitol Hill and the FCC," said Fritts.

The technical side of the industry will be honored with the Radio Engineering Achievement Awards, handed out at the Broadcasting Engineering Conference's Technology Luncheon.

May I be of service?

Feel dizzy yet? On-site services will help attendees sort through the pandemonium. The Attendee Conference Center in LVCC provides meeting rooms and business services. Throughout LVCC and the Sands, monitors will display each day's key events. If you are lost in the labyrinth of the exhibit hall, information staff will be located in kiosks throughout the trade show floors.

In this issue of RW, you'll find listings of companies that serve radio and audio attendees, and articles to help you select useful seminars.

At the show, look for the official NAB Daily News, prepared by the staffs of RW and its sister publications, and now published in two editions, both morning and evening.

NAB also publishes two important guides for attendees: One is a program guide with show overview and session information, the other a listing of exhibitors with booth information.

To ease your way, on-site services — baggage check, cell phone rentals, electronic locators, messaging kiosks, first aid and food — will be available as well.

Chong Will Seek Renomination

► CHONG, continued from page 1
her out. She feels that her work is not over, however, and she's not quite prepared to step down.

Chong spoke in her office with **RW** Associate Editor for News Matt Spangler and Managing Editor Paul J. McLane.

RW: Do you seek renomination when your term expires in June?

CHONG: I would be interested in renomination. It came up kind of suddenly, but after giving it some rapid thought, and talking with my husband, I have had to decide whether it would be possible. Of course, the decision is not mine but the president's, and I'm hoping to be speaking soon to the White House about the possibility of my staying on a while.

RW: What do you think your chances are?

CHONG: I don't speculate about things like that.

RW: Let us speculate perhaps the other way: When you eventually do leave the commission, what's the next step for you?

CHONG: Well, I haven't made any decisions about what I'll do next, but I think in the big picture, if we had our druthers, my husband and I would probably go back to California.

RW: Why do you feel that Senator John McCain has suggested recently that you should not be renominated?

CHONG: I have no idea. I have the utmost respect for the senator. I hope to be talking with him soon.

RW: You've made clear your belief that the FCC does not have jurisdiction to regulate liquor advertising. What do you think is the chairman's motivation to continue to insist that the FCC must regulate liquor advertising as part of its mandate to serve the public interest?

CHONG: He's discussed the issue with me on a personal basis. We have not discussed it on a public level. I think his position is pretty public; he believes that as part of the general public interest obligation that a broadcaster has ... we should be looking at whether they should be airing hard liquor ads on television.

I've gone on record saying that I don't think that the commission should do that. Hard liquor is a legal product and I don't believe that we have the expertise here to decide whether hard liquor ads are appropriate.

For example, beer and wine ads are shown on television; so far it's been a voluntary effort by broadcasters not to show hard liquor ads, but they do show beer and wine. What I'm concerned about is if we start examining whether hard liquor ads should be shown on TV, the natural question that comes up is, why are we allowing beer and wine ads to be shown? What's the difference between beer and wine viz-à-viz hard liquor? And those types of judgments require an expertise that we don't have here at the FCC.

I think it would be different if Congress had made some judgments based on hearings from health experts and safety experts about the dangers of liquor — that might present a different case to the commission. That has not yet happened. For that reason, I think that anything that we do here might be redundant. I understand that Federal Trade

Commission is already doing a proceeding on whether liquor advertising may be enticing underaged children to drink. I think that's absolutely an appropriate thing for them to be doing, and I don't think that the commission needs to be doing anything that's redundant to that.

RW: What are the broadcasters telling you about this issue?

CHONG: The broadcasters are telling me that most of them are declining these types of ads, because they want to be good corporate citizens. There are a few, though, that are accepting the ads, and at this point in time it's perfectly within their right to make that determination.

RW: Are broadcasters actively in touch with you, lobbying you — what is your relationship with the heads of radio and the NAB?

CHONG: Well, the NAB lobbyists certainly make it their business to be around ... They aren't here every day. Of course, we listen to them as well as any other party, if it's in a proceeding. We try very hard in our office to be very fair about who we see. If I see someone on one side, I make sure that I see a party who's on the opposing side so that I see both sides of the issue. We're very conscious of that in this office.

RW: There are a number of issues that you and the chairman reportedly don't

see eye to eye on. What are some that you do agree on?

CHONG: Well, in general, we both favor deregulation, we have been very pro-competitive in our outlook. We both agree that auctions are the way to go, particularly with new services. We are also both very intent on making sure that the agency works more efficiently. Reed has done a terrific job of introducing technology to the commission, such as computers, voice mail, electronic filing, web pages, and I have strongly supported him in all of those things. It really has gotten to be a much more efficient place for people to get their work done.

RW: You mentioned auctions. Senator McCain recently sent a letter to the chairman suggesting that the comparative proceedings process for the granting of new

See CHONG, page 44 ►

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Chong Puts Heat on Digital

► CHONG, continued from page 43
broadcast frequencies be replaced with legislation establishing the auctioning of new spectrum. So as a general rule, would you say that you would like to see broadcasters pay for digital or analog spectrum?

CHONG: My position is based on the fact that the current law says we do not have auction authority when it comes to broadcast licenses. That is the current state of the law and I obey the law. I think what Sen. McCain is suggesting is that there could be a legislative change as to broadcast licenses in the context of the comparative hearings. So, obviously Congress has to act before the commission would have that option.

RW: How do you feel about license renewals: Should they be auctioned, or should some sort of market-based fee be levied upon stations?

CHONG: We don't have the legal authority to auction them, so that's not an option right now, under the law. And so our current law is that there's a renewal expectancy.

Every time a broadcaster comes up for renewal, we look at whether they've met their public interest obligations. That includes things like airing children's educational programming, public service announcements, news, whether they've complied with the political fairness laws. It's not a slam dunk when a broadcaster comes up — we really do look, and I think that's the right thing to do. They are using the airwaves for free, they must give back to the community through public-interest programming, and the good news is that broadcasters do that. They are very cognizant that this is important to the community — it's how they get viewers, and they are doing it.

RW: How would you assess the change in

the marketplace after the Telecommunications Act? Is the effect what you expected?

CHONG: I think so. I think the main thing the Telecom Act did was loosen up the ownership restrictions. In radio, particularly, there was a big loosening up ... and as a result we've seen a huge increase in radio deals this year.



Photo by: Paul J. McLane

FCC Commissioner Rachelle Chong and **RW** Associate Editor for News Matt Spangler.

RW: Is that good?

CHONG: I think it's good. I think Congress has spoken as to what the appropriate limits ought to be, and as long as a party is within those limits, there's no other issues raised in the application ... I think that the bigger broadcasters should be free to put together groups that are efficient, that have economies of scale, what works for them. I think it's good. I sat down with some radio broadcasters, and they told me they're all out making deals. They tell me it's a terrific time for them. They're strategizing, they're trying to figure out which markets serve them best.

RW: How do you respond to Sen. Burns' recent letter suggesting that the FCC review of these radio mergers is often a

duplication of the Justice Department review, and if this continues, it calls into question the need to continue funding for the Bureau of Competition?

CHONG: I think Senator Burns is raising an important point. The commission's review of a radio transfer is based upon our looking at the public interest and whether it is served by this transfer. Now, when we look at the public interest ... we will focus, as one aspect of our analysis, on whether there's competition in the market if this transfer goes through. (Will there be) adequate diversity in that particular radio market?

DOJ has a different task. Their task is to look at the public interest in terms of, is there going to be enough competition in the market, such that there's no market power? So, their analysis is an antitrust, market power analysis, which is different from what the commission is doing. I think Sen. Burns is right in that the commission should be sticking to its analysis, and when we're satisfied with our analysis we should make our decision regardless of (what) DOJ is doing.

RW: Do you think Congress will eventually move towards further easing of the ownership caps, and what will happen to the radio landscape if there's further deregulation?

CHONG: I'm hearing from the folks on the Hill that they don't expect there to be further Telecom legislation this year. I would be very surprised if there was further loosening, at least in the near future. And the commission, of course, has clear benchmarks in the Act.

RW: What's ahead for further ownership changes, such as radio-TV cross-ownership?

CHONG: I think it's an area that needs some scrutiny; there is some feeling among the commissioners that we have to look hard at this rule. It might be outdated.

RW: What do you see happening in the future of the debate on digital sound broadcasting?

CHONG: I know that the industry is still working on it. They've put a lot of resources into it, I'm told. In fact, when I saw the radio group heads, I was encouraging them to keep the heat up on that effort, and the reason I told them that is I'm very sure that technology is clearly going digital. Look at digital satellite broadcasting, digital TV, in terms of video programming, satellite programming. I was telling them, look, if you're going to compete, you've got to go digital. They tell me that they are still intent on the project, and I hope that they will reach closure on it soon.

RW: The Washington Post recently quoted a federal official who described the NAB as "the most perfect lobbying machine you could ever design." Just how powerful is the NAB when it comes to shaping telecommunications policy?

CHONG: I think all the associations are very powerful, and that they represent a large membership. They are experts on lobbying the commission, and of course they have influence. Having said that, I feel very confident that this is an agency that cares about the little guys ... This is

not a place that just rolls over and does anything that an association tells it to do in public.

RW: One would expect group heads with many stations to be pleased by the loosening of ownership caps, but the small stations, who are maybe standalone or family-owned, aren't always so unanimous in supporting this thing. Are they coming to you, through NAB or otherwise, and saying that they've benefited?

CHONG: I had a few group heads of family-owned radio groups mention to me that they have been receiving a lot of phone calls from people trying to buy them, but they were refusing them, because this was not what they wanted to do. They were very proud of their groups, and they're not interested in being part of a big corporate chain.

I think really what people are talking about is that they're concerned about a lack of diversity within a market. I think that Congress carefully considered that when they put the new radio ownership rules in place, and you'll note that the place where they allow the most number of stations in a market is in the very large markets.

We've got to recognize that there's much more competition there than there ever used to be. It's not a situation where you just have three networks now, one cable operator and one large local newspaper. Now you've got all these competing entities — you've got DBS, cable, 40 to 50 cable channels in a market on multiple networks — so, you have to look at all the competition at once. I think the reality is that the market is changing, and we've got to look at what the market is now. I think that's the view that I'm going to take into our ownership proceeding that we expect to have this year.

RW: You're known for your "hands-on, getting in the field" approach to understanding the issues facing broadcasters. Have you spent much time in radio stations getting to know personnel and their concerns?

CHONG: I used to be in radio in college, as a matter of fact. We had an all-women's newscast (at KALX(FM) at the University of California-Berkeley).

I have toured radio stations, when I'm in town for conventions or speeches, and I've chatted a lot with many radio heads about what their current challenges are. I also go every year to NAB and talk with them formally to find out what their hottest issues are. We always have an open door policy in my office. Any licensee can come and talk to me, whoever they are, big or small ... I don't want to regulate from an ivory tower.

RW: In general, what are their concerns? What are they telling you?

CHONG: I think their main concern is diversity. I think some of the smaller or medium broadcasters are concerned that with all the mergers, there may be a loss of diversity.

Having said that, the broadcasters are very excited about this new information age. They don't want to be left behind. One of the trends that I've been talking about is that a lot of the broadcasters are starting web pages. They are doing that because they realize that this is a way to attract and keep their listeners and get them involved with the station.

We've been talking a lot about what their role will be in the future as the information age continues to progress, and they appear to be very optimistic about it.

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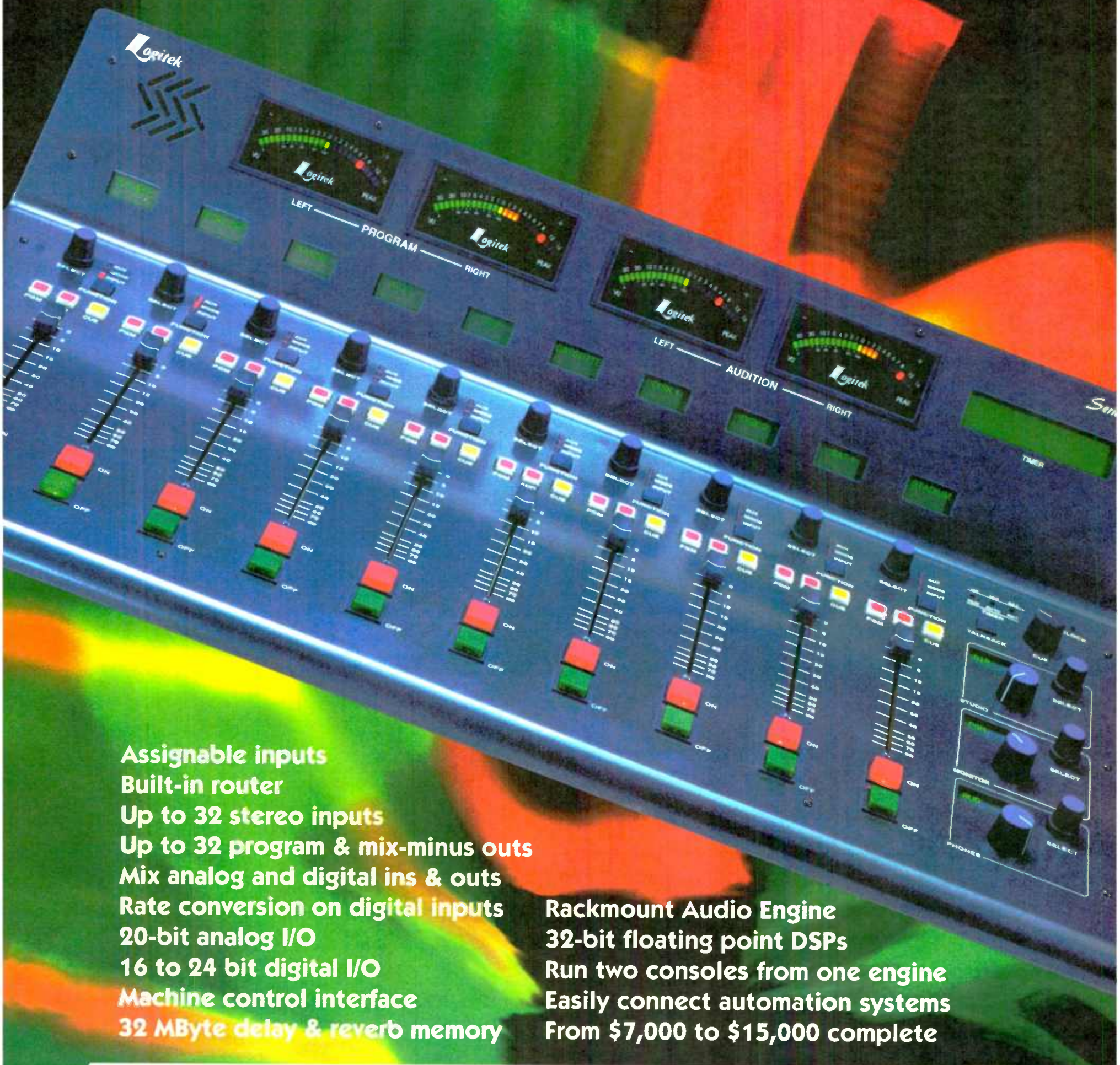
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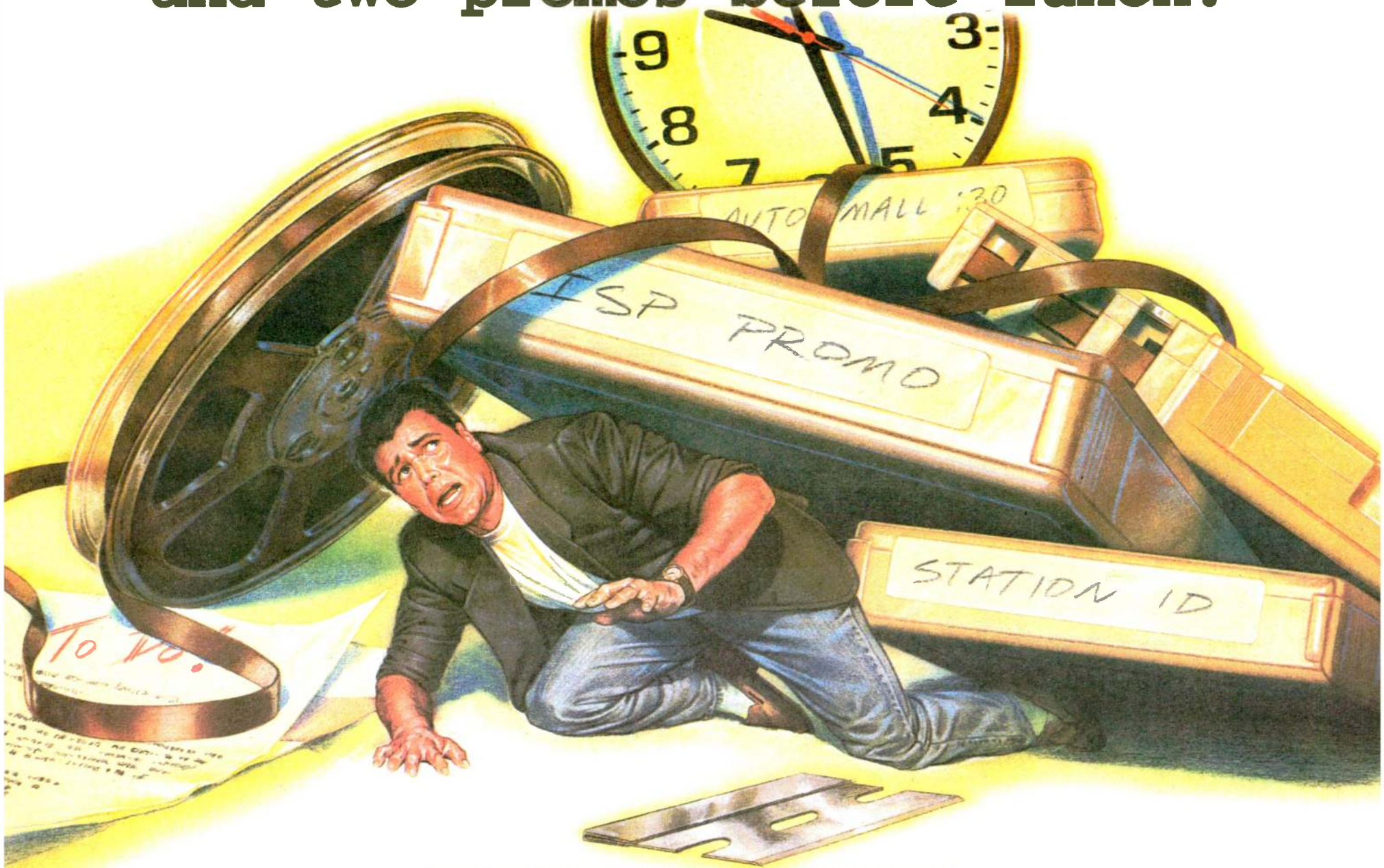


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Circle (48) On Reader Service Card
 World Radio History

Fritts Speaks Out

► FRITTS, continued from page 19
for years and years and years.

But year beyond that, we are very excited that the radio broadcasters that I have spoken with around the country have said, "Gee, this is great, we can move the show around now that it's a manageable size, and we can go to some very, very nice cities and it sort of breaks the monotony of going to the same old location time in and time out."

RW: Will the SBE have any involvement with the full radio show?

FRITTS: No, not that I'm aware of. They will have a continuing relationship for the spring show.

RW: Due to the change in format to a radio-only show, revenue for the '97 radio show was expected to drop to \$1.26 million, from \$2.33 million in '96. How does NAB expect to compensate for this drop in revenue?

FRITTS: I think what we have decided is that the aesthetics, the *esprit de corps* and the opportunity to have the family reunion of radio in one location as a special entity overcomes any motivation for profit out of this. We recognize that by doing a stand-alone radio show, the profit opportunities are going to be extremely limited, but we are still committed, in spite of that, to put on a first-class radio show.

Liquor

RW: Did the NAB Board address liquor advertising at the recent winter meeting in Naples, Fla.?

FRITTS: There was a discussion under the area of building relations and also under the FCC discussion relative to the proposals — one by Reed Hundt — attempting to inject the FCC into that arena ... John Dingell had issued a rather strong statement indicating that the FCC had no jurisdiction in this matter, and I think John Dingell's long-standing career as chairman and ranking member of the Commerce Committee puts him in a unique position to evaluate that.

It was noted that very few stations have accepted hard liquor advertising and each station, under its public interest obligations, has to make a decision as to whether or not they're going to accept hard liquor advertising. While the NAB code was struck down by the Justice Department in the late '70s as being anti-competitive, that decision does not encroach upon the individual station's licensing responsibility relative to their own station's code of practices.

RW: Thus far, almost everything we've heard has centered around TV stations. Are radio stations expressing an interest in this sort of advertising?

FRITTS: The reports we've gotten back, although we've not done an exhaustive survey, have indicated ... there are very, very few stations running hard liquor advertising.

RW: What do you think will be the outcome of congressional hearings on liquor advertising?

FRITTS: It's hard to determine what the outcome of those hearings will bring. You have two issues: one, is the FCC going to go forward with hearings? We understand that the chairman does not

have the votes to go forward at this time. Clearly, the Telecommunications Subcommittee has announced that it will lead hearings under Senator Conrad Burns' leadership and so those will be an interesting challenge, to say the least.

We may well use those hearings to remind the Congress and the American public of the terrific job that radio stations have done around the country with our anti-alcohol abuse program, the Star campaign, where we've attacked five different areas of alcohol-related problems.

Free airtime

RW: What is the NAB position on the possibility that Congress may give free



airtime to politicians as a part of campaign finance reform legislation?

FRITTS: Free airtime or time discounted at the lowest unit rate has always been an anathema for broadcasters. If free airtime means additional attack ads or discounted lowest unit rates, if it means that it opens up time for attack

ads, clearly we are opposed to confiscation of time by the government for that purpose. However, we are and have always encouraged public discourse on the issues relative to debates, public affairs programs, news programs, and I daresay very few candidates for public office suffer from lack of exposure on radio or television.

RW: Will the NAB take any steps to lobby Congress to drop such a measure from any proposed legislation?

FRITTS: Clearly we have been lobbying Congress over a period of years — this is not the first proposal for free time. There seems to be, because of all of the questions relative to current finance law,

See FRITTS, page 48 ►

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'Opening Dialogues'

► FRITTS, continued from page 47

a heightened sense of awareness at this particular point in time relative to campaign finance and the whole system of democracy by which we elect our representatives to Congress.

I will say that I'm encouraged that Senate Majority Leader Trent Lott, in a public interview (last month), said that he had no intention of scheduling a campaign reform bill for floor action. He indicated the current bills are flawed; he said their authors know that, and that Congressional investigations will have to go forward to determine what existing laws are appropriate before they decide to write new ones.

NAB and Justice

RW: Are you comfortable with progress in the NAB dialogue with the Justice Department about its investigations into radio mergers?

FRITTS: The chief of the antitrust division, Joel Klein, was kind enough to make a presentation at the Group Head Fly-in on Feb. 19. He opened a constructive dialogue and fielded questions from the radio group heads relative to this. I think NAB has made a big difference opening dialogues with Justice toward trying to find expeditious solutions to Justice matters relative to radio consolidation.

RW: In these dialogues, did it seem that the Justice Department was coming to an understanding of NAB's position that radio should be defined as a separate medium?

FRITTS: I think that the Justice Department and its staff under former Chief Anne Bingaman had a preconceived notion relative to the radio marketplace. I can't say definitively that that's been completely turned around at this point, but I will say that I think progress has been made.

RW: This whole Justice Department question raises another issue, which perhaps you discussed at the radio board meeting. In this age of consolidation and mergers, how can NAB best serve its radio membership of conglomerates and stand-alone owners?

FRITTS: That's interesting. Not all stand-alones are little guys. Jerry Lee, who owns a station in Philadelphia, is a single operator, said he is perfectly comfortable with his competitors being conglomerates, and it brings more of a heightened sense of the importance of radio to the marketplace. He feels like he'll get his share of the revenue and the audience as a result of that.

As you know, the Telecommunications bill allowed some degree of consolidation even down to the smallest market. For those stand-alone operators who are concerned about conglomerates buying in smaller markets, it's not going to happen. The conglomerates are not interested in smaller markets.

RW: Are there any changes that NAB will have to make internally as an association to serve both the single owner and conglomerate?

FRITTS: The reason the Telecommunications bill passed was because the NAB Radio Board voted, I think, unanimously in support of consolidation and the relaxation of ownership rules. So I would say that, while we may hear a lone voice in the wilderness from

I think NAB has made a big difference opening dialogues with Justice.

time to time, the vast majority of broadcasters across the country have been very supportive.

Ownership attribution

RW: From your discussions, is it likely that the FCC will change the ownership attribution regulation?

FRITTS: We think that's a step in the right direction.

RW: Is it detrimental to the public to ease up on ownership attribution?

FRITTS: They're only going to change the attribution from 5 percent to 10 percent. So it's not a massive change. It primarily affects institutional investors, such as insurance companies, who may have a passing interest in the stations.

RW: But when you say "a step in the right direction," does that mean the NAB is pushing for more?

FRITTS: I think the general consensus is that radio should have the same opportunities that other businesses do.

Tax deductions

RW: How do the board members feel about the limitation of advertising as a tax deduction?

FRITTS: We see this as something that could potentially be devastating to all advertiser support. We have been working for several years now with the members of the Ways and Means Committee in the House and the members of the Finance Committee in the Senate. We have gone to the advertising agencies, the newspapers, the publishers, the radio stations and the television stations. In each home district, the senior leadership of both of those committees has set up meetings over a long period of time where those members could be educated as to the impact that those actions would have on advertiser-supported media.

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The Radio Buffet Is Full at NAB

Here are some other NAB '97 radio highlights. See your show program for times and locations.

SATURDAY, APRIL 5

Internet Site Design: Do it Yourself or Send it Out?
Guidelines for deciding whether to develop your site internally. A primer for Internet hosting services. (MM)

SUNDAY, APRIL 6

Sneak Preview of the Radio/Audio Exhibit Hall
Get a sneak preview to chart a course across the NAB '97 exhibit floor. RW Editor in Chief Lucia Cobo moderates. (RM)

Radio Opening Reception
Radio's welcome. Sponsored by ABC Radio Networks. (RM)

Digital Sound Broadcasting: Testing and Regulatory Issues (and) Implementing New Technology
Eureka, WorldSpace, IBOC and IBAC have undergone numerous tests designed to examine the feasibility of digital broadcasting. The first session will focus on test results and clarify the regulatory hurdles. The second session covers concerns that must be considered prior to the implementation of any digital system. (BC)

Creating Interactive Audio for the New Media
Learn about the challenges and opportunities involved in the creation of multi-dimensional audio forms. (MM)

BCFM Financial Management Workshops
Radio and TV owners and managers will learn the new economics of station acquisition and multiple station ownership. One workshop will prepare you to acquire or to be acquired. The second cites case studies of multiple station owners.

How to Make Your Production Sizzle
Some of radio's most sought-after production directors share their ideas. (RM)

NAB MultiMedia World Reception
Network yourself into Web heaven.

TUESDAY, APRIL 8
The State of Radio Sales
RAB President Gary Fries gives his annual state of the industry address. (RC)

The Electronic Miracles That are Revolutionizing Sales
Computers, databases, the Internet. Learn what's in store before your competition does. (RC)

FCC Policymakers Breakfast
Participate in an open discussion with top FCC decisionmakers. (BL)

FCC EEO Obligations in the 1990s: Change Ahead?
With the FCC reviewing its EEO program and its related system of enforcing EEO rules, get the latest on how to avoid violating these 'core' FCC requirements. (BL)

Webcasting: Is It Ready for Prime Time?
This session presents aural and visual demonstrations of a variety of webcasting technologies and explains the benefits of each. (MM)

Antitrust Primer for Broadcasters
Learn about the antitrust 'basics' of federal and state antitrust laws and get some practical tips on compliance and 'trouble avoidance.' (BL)

WEDNESDAY, APRIL 9
Cash in the Bank
Does it make you crazy when you see page after yellow page, representing hundreds of thousands of dollars' worth of ads, in the phone book? Find out what the Yellow Pages cannot



Conference Key:

- MM — NAB's MultiMedia World New Media Professionals**
- RM — NAB Radio Management**
- BC — NAB Broadcast Engineering**
- RC — RAB Sales & Marketing**
- BL — Broadcasters' Law & Regulation**

MONDAY, APRIL 7
Audio Processing: Competing With Digital Services
Creative audio processing can help capture and hold new radio listeners. (BC)

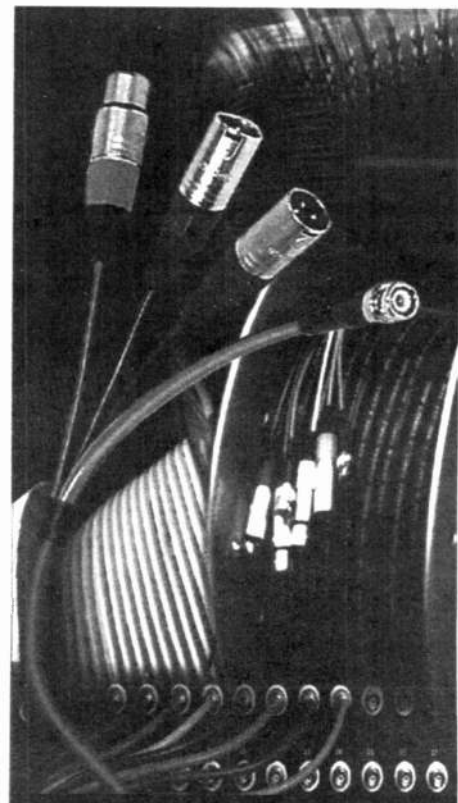
achieve, but radio can. (RC)

ENG/SNG: Digital Quality in the Field
Technologies for delivering quality audio and video from the field are improving rapidly. (BC)

The Myth of Public Domain
Case studies and advice from expert panelists on ownership rights, patents, electronic protection of content and more. (MM)

Amateur Radio Operator's Reception
An annual favorite. Sponsored by Richardson Electronics. (BC)

THURSDAY, APRIL 10
The Marriage of PC and Broadcast: A Look at the Future
Learn how manufacturers are driving this convergence; discover what's ahead. (BC)



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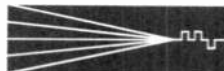
Today's radio is a multi-billion dollar national corporation, with scores of semi-autonomous branch offices; a treacherous landscape where the weak die like dogs. Today's radio network can't just deliver audio. Today's radio network requires high-speed LAN connections, telephone calls, Internet connectivity, maybe some CD quality digital audio, and people who know that "ATM" is more than that thing down at the local bank.



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Following is a listing of companies that are exhibiting audio-related products at the NAB '97 Spring Convention and Exhibition. Information included in the listing was provided by the companies and was accurate as of press time. Booth numbers are subject to change.

360 Systems 1724
Intro: DigiCart/II, digital audio hard disk recorder features an internal 16- or 32-hour hard disk, a removable disk, editing and playlisting functions, instant access to cuts, comprehensive remote control, provides digital I/O in AES/EBU, AES/SMPTE and IEC 958 Type II formats, also analog I/O. Significant enhancements to be introduced at the show.
Also: Shortcut personal audio editor; Instant Replay; AM-16 audio routing switcher.
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 Westlake Village, CA 91361
 telephone: (818) 991-0360
 fax: (818) 991-1360
 e-mail: info@360systems.com
 Web site: www.360systems.com

MPEG Layer II, LAN manager digital recording and editing, unlimited storage capacity; Excalibur Console, 16/26 inputs mainframe, modular, all inputs and outputs balanced, four independent stereo outputs and two independent mono outputs.
Exclusive FM/MPX 10-band audio processor, independent control for threshold limiting, gain, clipping and attack time, electronically-balanced inputs and outputs, storage of 256 different processed sounds, automatic preset switching on a programmed event schedule.
Also: Mirage FM/MPX three-band audio processor; Luxor 3-D enhancer; Thunder composite audio processor; Starlight digital stereo coder; UMR 6200 portable telephone hybrid.

A-Ware Software Inc. 1401
Intro: MusicMaster Nexus Server creates a real-time, closed loop interface with digital audio automation and traffic scheduling systems; TrafficMaster features software for traffic scheduling, sales tracking and yield management, designed for multiple station operations, integrates with most broadcast automations systems; MusicMaster, a Windows-enhanced version of A-Ware's fast and flexible MusicMaster music scheduling software featuring History-linking, Quick Recall, song lists, precision history storage and improved hour rotation tests.
Also: MusicMaster; Real Time; Storage Library.

A.E.Q. S.A. 2412
ABE Electronica S.p.A. 4940
AccuWeather Inc. 10564
Intro: UltraGraphix ULTRA Weather System, a silicon graphics-based weather system used by CNN for timeline animations and include more than 100 new enhancements; UltraGraphix-32 PRO Weather System features animated transitions, custom 32-bit graphics, VirtualWeather FlyThru animations, automated show creation; Ready-for-air Weather Video via Satellite features network quality graphics and animations without a graphics computer, a CycleSat/Vyvx, including VirtualWeather FlyThru animations, Weather-in-the-News animations, Doppler+Satellite animations, NEXRAD Doppler+Satellite loops, weather maps and temperature band maps.
Also new, netWeather, complete, accurate and timely weather for a web site, plus 15 other information types.
Also: The Exclusive AccuWeather Forecast; FirstWarn; Weather Show; Local Cable Weather.

AKG Acoustics 6948
Altronic Research Inc. 1003
Intro: A light-weight, 2.4-meter satellite SNG antenna for Ku-band applications, compact design including motorized cable drive system, reduced storage height and controller package.
Also: Model 67150, a 150 kW air-cooled dummy load for MW transmitters; Model 3500 digital calorimetry; Model 6750, a 50 kW air-cooled dummy load for frequencies thru 220 MHz.

AMCO Engineering Co. 5913
Intro: Enclosures for Monitoring Applications, single or multibay consoles in a variety of styles and sizes, with full line of accessories and color finishes.
Also: Full line of enclosures for electronic packaging - commercial or shielded, in a variety of styles, heights, widths, and depths.

Amek U.S. Operations Inc. 7343
Intro: Amek Digital Mixing System (DMS), a 32-bit floating point parallel processing engine featuring flexible architecture; System 9098 Dual Compressor-Limiter, analog signal paths, includes an "ambience" control, allowing the suppression of intrusive or unwanted reverberation fields; System 9098 Twin Microphone Amplifier, contains two mic amp and direct inject inputs, stereo operation possible and A-B and M/S decoding.
 Recall by Langley is a computer-assisted console that features a Recall system, VCA or moving faders, snapshot automation, Virtual Dynamics and Visual FX. Audio facilities include a 4-band EQ with sweepable high- and low-pass filters, output matrix and 12 auxiliary sends.
Also: System 9098 remote controlled microphone amplifier (RCMA); System 9098 equalizer.

AMS Neve PLC 8810
Andrew Corp. 11054
Antenna Concepts Inc. 8672
Intro: Ultra Tracker RF eliminator FM antenna, eliminates side lobes causing RFR and multipath; Blaster UHF CP Low Power Transmit Antenna, reaches areas with inside loop antennas; Spanner Full UHF Range Transmit Antenna, HDTV-ready for multistation application.
Also: Full range of UHF, VHF, FM, MMDS transmit antennas, including double dipoles, traveling wave slot, corner reflectors and more with custom patterns a specialty.

Adirondack Software Corp. S2927
Intro: Multi-Event Scheduling System, Version 4.2 designed for the broadcast industry with a new graphical user interface, expanded employee types and new reports including a timeline showing employees' time.
Also: Multi-Event Scheduling System automates many of the time-consuming aspects of scheduling manpower to broadcast and live events, tracking time, costs, and administering benefits.

Aircraft Production Music Libraries, The 8885
Intro: The Aircraft Production Music Libraries features 81 plus CDs with automatic updates with features such as: Co-Pilot, Speed Search, Connecting Flights; The American Music Series includes 7 CDs of period music from the Revolutionary War to the Jazz era to the 1950's and 1960's; ADS Up! Music for Commercials contains 4 CDs with enough retail themes to help you sell, features 132 edits per CD.
Also: Rock Sweepers and IDS.

AirWorks Media M7130
Intro: TuneBuilder for WIN '95, automatic music editor, automated search and audition of music selections, dynamic volume adjustments; SoundHouse, editing and synchronization tools, automatic sound cueing, independent of platform, storage device, transmission file and file-format, library, catalog, and asset management, report generation, verification of ownership.

AMCO Engineering Co. 5913
Amek U.S. Operations Inc. 7343
AMS Neve PLC 8810
Andrew Corp. 11054
Antenna Concepts Inc. 8672
Adirondack Software Corp. S2927
Aircraft Production Music Libraries, The 8885
AirWorks Media M7130

AEV 1818
Intro: Virtual Radio, a radio system automation system for live assist or fully-automated broadcast on hard disk, ISO-



AEV 1818
Intro: Virtual Radio, a radio system automation system for live assist or fully-automated broadcast on hard disk, ISO-

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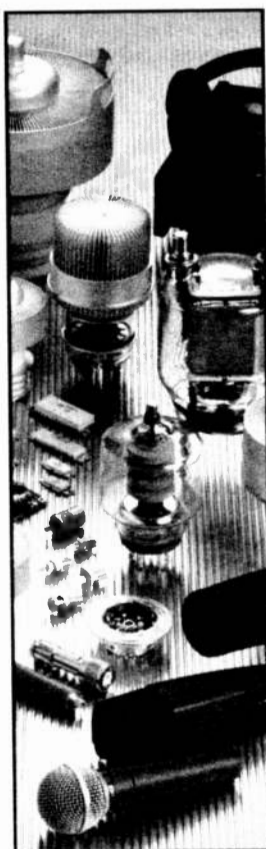
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Anthro Corp. S3232

Aphex Systems 4103
Intro: Model 2020 FM Pro, a one box solution for FM processing, includes a wide band leveler, four band compressor, split band limiter plus options for high frequency limiter, stereo generator and digital I/O, achieves maximum loudness while maintaining high sound quality.
Also: Compellor, Dominator, Expressor, Gate, Tubessence Mic-Pre, Compressor, Aural Exciter with Big Bottom.

Apogee Electronics Corp. 1718

Intro: FC-8 format converter, converts between ADAT and TDIF (DA-88) digital audio formats.
Also: AD-1000 20-bit A/D converter; DA-1000E-20 20-bit D/A converter; master DAT and CD-R discs.

Armstrong Transmitters 1601

Arrakis Systems 2406

On Display: Digilink III and Digilink IV, Shared Audio Storage System (SASS) digital audio library, Desk*Star furniture and 1200 series, 12000 series, 22000 series consoles, Radius studio furniture.

ATI Audio Technologies Inc. 5527

Audi-Cord Corp. 2006

Audio Accessories Inc. 5759

On Display: Audio jack panels and jacks; pre-wired audio patch panels; patch cords; patch cord holders; Polysand; video panels; RS-422 patching; Edac connectors and accessories; nickel-plated patch cords; Project Patch.

Audio Action 10360

Audio Developments Ltd. 2424

Intro: AD144 for studio and O.B., four O/Ps plus two auxiliaries, continuously variable gain, comprehensive switched EQ, channel inserts and limiters, replaces AD062; AD149 for film and drama.
Also: AD160, 3x1 mono mixer, electronically balanced O/P; AD261 4x2 MS stereo mixer with input and monitor decoders; Mercury two O/P plus two auxiliary electronically balanced mic/line inputs and outputs; AD146, four O/P, modules for mic/line standard, mono line, stereo line; AD148 four O/P as per AD146 but with extended monitor features and I/P faders calibrated to 0dB rather than +10 dB as standard.

Audio Precision 3124

Intro: SWR-2212 series audio wwitchers for use with System One, System Two and ATS-1 audio test systems.
Also: System One; System Two; Portable One Plus; ATS-1 audio test and measurement systems.

Audio Processing Technology Ltd. 1727

On Display: BCF 256 Broadcast Communications Frame delivers full duplex FM-quality stereo digital audio up to 15 kHz over permanent links like STLs and permanent studio networks. BCF 256 incorporates an X.21 serial bitstream data interface and an integral terminal adapter for fail-safe ISDN back-up should the normal link fail. BCF 256 has optional digital I/O, is a multi-algorithm codec, and can switch between apt-X and either Layer II or G.722 coding.
 NXL 256 is a Broadcast Network Transceiver that delivers broadcast-quality audio over fixed links. It is an apt-X based codec with the provision for connection to an external terminal adapter ensuring programme continuity. Is a compact 1RU codec designed for bandwidths from 8.5 kHz mono to 15 kHz stereo; ADK 200 is Professional PC audio card which is compatible with Windows

'95 and allows simultaneous multi-channel audio playback and records on the latest generation of PCs.

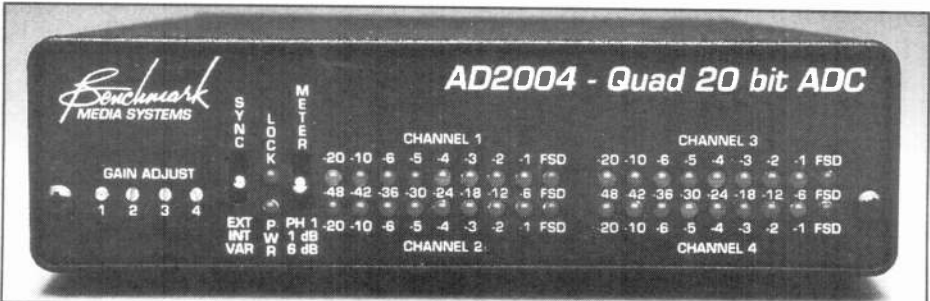
Audio-Technica U.S. Inc. 6311

Intro: AT-MX351 SmartMixer, 4 mic/line inputs, plus aux in/out, automatic threshold setting, 48V phantom power individually selectable for each channel, limiters on each mic prevent individual channel overload; 900 series UHF wireless systems, true diversity reception for greatest reliability, interference-resistant UHF band operation, InvisibleLink circuitry for optimum sound quality; AT854R quad

VHS-Super Hi-grade back coated videotape with plastic library box; Broadcast S-VHS available in lengths of T30, T60, T120, T180 and comes in a plastic library box.
Also: Betacam SP Mega; Digital Betacam, 1" C (VT 26 C)

Belar Electronics Lab. Inc. 3312R

Intro: Digital TV Stereo Monitor - TVM-230, a DSP-based, microprocessor-controlled digital BTSC TV stereo monitor/analyzer employing linear-phase FIR filters, features RS-232 port and Wizard Interface for full remote operation;



Benchmark AD2004 Quad 20 bit ADC

mic, multichannel boundary microphone in one housing with one cable, four independent cardioid condenser elements, four shielded balanced lines in a single 30-foot cable.

Also: Microphones, wireless microphones, mixers, audio accessories for studio production, live broadcast and field recording applications.

Audioarts Engineering 1212

On Display: R-5, R-60, R-16, on-air radio consoles and the MR-40 production console.

audiopak 2010

On Display: Broadcast cartridges; lubricated tape; cassette components.

Auditronics 3018

On Display: 2500, 210, 801/851, 310 and 900 series audio consoles; 1900 series mix/minus system; 3000 series digital audio console.

Autogram Corp. 3906

Intro: Solution 20, a universal accessory system including RC-1 relay card, DA-1 distribution card, SMA-10 monitor amplifier card, MPC-1 mic processor card.
Also: RTV-20, AC-8A, PM1032, MM8A, MM12A, Autoclock 100 audio consoles.

Avcom of Virginia, Inc. 8880

Intro: PTR-25 LCD portable test receiver, a battery operated satellite receiver, with built-in color LCD monitor, Squawker system, and relative signal strength meter in a single package. Receiver incorporates a microprocessor that controls functions such as tuning, frequency, and DFL (digital frequency lock).; PSA-70A portable spectrum analyzer, a microprocessor controlled portable spectrum analyzer to 2 GHz; MDM-950-8 microwave distribution module, a rack mounted eight-way amplified power divider in the 950-1450 MHz range.
Also: Portable spectrum analyzers; microwave/RF sweep generators; network and spectrum analyzers; return loss bridges; broadband noise generators; portable test receivers; satellite receivers (SPCU, SCS, video, INMARSAT); and microwave video links.

Avocet Instruments 1403

BASF Magnetics S1556

Intro: Professional VHS, high-grade videotape, back coated, tab in with cardboard sleeves, available in T30, T60, T120, T160, T180, and T200; Broadcast

SAP/PRO Monitor TVM-250 combines simultaneous demodulation and peak modulation measurement of both SAP and PRO subcarriers; TV Aural Monitor for cable operations.

Also new, FM monitoring products for FM group owners and duopolies feature the ability to access monitors remotely through an RS-232 port; RBDS and SCA subcarrier monitors for the Wizard System to control and access remotely through an RS-232 port; AM Wizard for controlled carrier features simultaneous monitoring of positive and negative peaks

for control carrier or auto leveling, carrier threshold detector to sense negative over modulation conditions.

Also: TV Aural and Frequency Monitors, BTSC stereo monitors and reference monitors. All AM, FM Stereo, subcarrier and frequency monitors.

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Benchmark Media Systems Inc. 8664

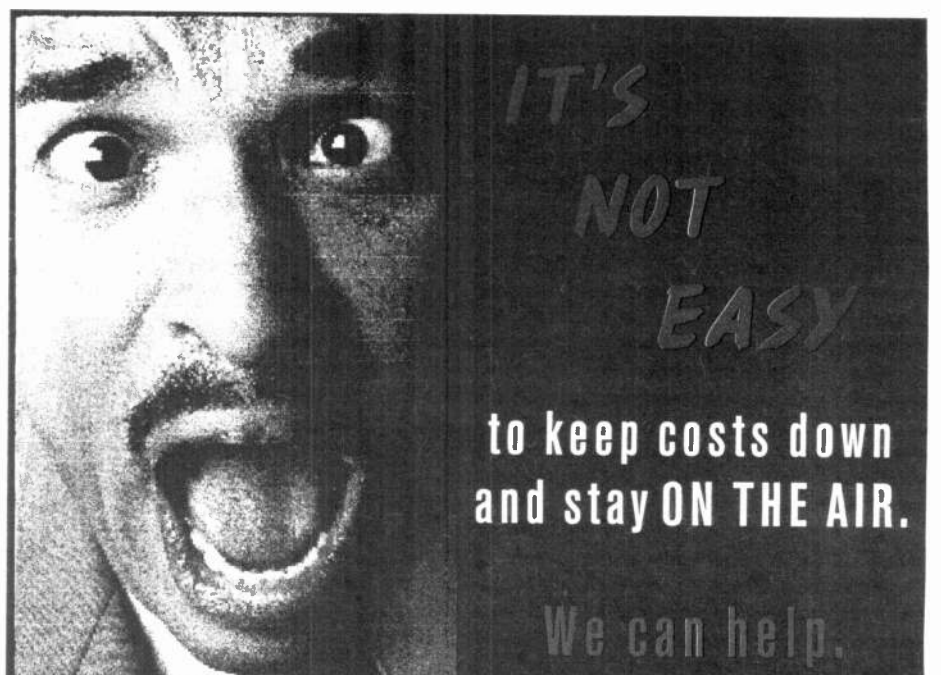
Intro: DAC 2004 20-bit four-channel digital to analog converter with low-noise and distortion converter and the company's "jitter" reduction technology providing up to 50 dB of jitter reduction; AD 2004R 20-bit four-channel analog to digital converter features ultra low intrinsic jitter.

Also: System 1000 consisting of Audio DAs, Microphone Preamp DAs, router/switchers, etc.; MicroFrame Series 1 RU frame with 16 channels of line amplification or mic-preamplification; General Products Series - Interface Amps, mode controllers, meter systems and mic preamplifiers.

Best Power/ North Star Technical Services S4367

Intro: Fortress uninterruptible power system-models LI52OV and LI72OV protect network data and hardware from lightning and surges, blackouts, frownouts and over voltages. UL1449 listed. Includes 2-year warranty.

See page 52 ▶



If you're still operating with an old tube transmitter, you're missing out on an opportunity to cut your energy consumption by over 50%.

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performance, even in the world's most rugged environments.

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SALES REP INQUIRIES WELCOME!

▶ continued from page 51

Also: Ferrups and Unity/I single and three-phase, Fortress and Patriot UPS; Spikefree surge protectors; CheckUPS shutdown software and interface kits.

Bext Inc. 3603

Intro: A series of antennas for FM and TV. *Also:* FM Solid State Transmitters 2W - 40KW; FM Tube Transmitters 800W-30KW, STL Systems Translators and UHF, VHF solid state and tube TV Transmitters 2W-60W

beyerdynamic 5505

Intro: MCD 100 digital microphone, a digital condenser studio microphone that works on preamplification and A/D conversion of the microphone signal, accomplished directly behind the microphone capsule, providing an AES/EBU signal at the output of the microphone; MCE 82 stereocondenser microphone, a stereo

condenser handheld microphone designed to operate in the XY stereo configuration, designed for ENG/IEP reporting in conjunction with DAT recorders.

MCE 84 condenser microphone, an electret condenser microphone with an equalized frequency response for instrument miking, with the convenience of battery or phantom powering and with a windscreen, it can be used for speech.

Also: Dynamic and condenser microphones in hardwired and wireless versions; UHF and VHF wireless systems; studio and broadcast monitoring headphones and headsets.

Bird Electronic Corp. 1327

Bradley Broadcast Sales 1506

British Information Services S4858

Intro: Newsbreaks from Britain on the Internet, Internet users can download the

Radio Newsbreaks service "live" on Britain in the USA.

Also: Radio Newlines, Sound bites from high level British Government reaction to breaking news stories, Live audio news feeds from press conferences or pool interviews; Radio Newsbreak; Radio newsbreaks in Spanish; Radio Newsbreaks on the Internet.

Broadcast Electronics Inc. 1207

Intro: RF Systems Division: AM-10A 10 kW AM transmitter offering updated RF amps and power supplies and a compact cabinet; The Predator, a digital FM transmitter/exciter that boasts modular construction and multiple power levels. Digital Systems Division: AV-Edit, a visual cut and paste editor; AV-Voicetrack, a voice tracking tool; StudioBoss, a studio information manager, designed to create paperless studios.

Also: RF Division: SRPT-40, a 40 W frequency-agile remote pick up transmitter (RPU); SR-10, a frequency agile RPU receiver; STL-30, a 30 W STL as well as Remote PU transmitters in 2, 15, & 30 ranges, in addition to STLs. Digital Systems Division: AudioVAULT, digital storage system for radio; NewsBoss a newsroom system audio editor for radio.

Broadcast Programming 1207

Intro: Delilah After Dark, ACs 7 p.m. to midnight solution, featuring satellite delivered hit AC music hosted by Delilah Rene. *Also:* Consulting, researched music formats, playlist and libraries, and digital programming systems for flexibility-scheduled barter or cash.

Broadcasters General Store 2019, 8865

Intro: DNF Industries ST-3000S/SM, a slow motion controller for VTRs in a 6-inch by 12-inch footprint, T-bar or shuttle wheel controls play speed from -100 percent to +200 percent, stores and recalls 100 cue points; Comrex "Hotline," POTS line codec extends telephone frequency response to 10 kHz, balanced I/O, headphone jack, two contact closures, memory quick-dial, portable; MediaTouch "INES" features "touchscreen" page turning of news text that also includes "touch icons" for instant access to related sound byte audio, Radio Systems display clocks and RS-12 console.

Also: 360 Systems Instant Replay and Shortcut; Gentner digital phone hybrids; CircuitWerkes telco interfaces/DTMF decoders; Broadcast Tools expandable intercom system.

BSS Audio 2421

Intro: OMNIDrive Compact, three input, five output digital loudspeaker processing system, multiple configurations from stereo two-way to mono five-way with aux input for independent sub control; AR 133 Active Direct Injection Box, converts high impedanced unbalanced signals to balanced mic level for easy input into consoles.

Also: Analog and digital processing products for broadcast and recording studios, live and installed sound; DPR series of dynamic processors; MSR Series mic/line splitters.

BSW-Broadcast Supply Worldwide 2112

Burk Technology 3524



C.T.E. 3826

Intro: 250W and 1kW for transmitters—microwave components: Coax B.P. filters, coax circulators, waveguide circulators, "t" and "t1" plane waveguide bonds, waveguide to coax adapters, flexible waveguide sections; TV 1000 has 1 kW VHP solid state transmitter; DAB 250W, Band III, VHP, 500W Transmitter (complete station) for DAB Transmission; Complete station 500W DAB Transmitter, L-Band. *Also:* 1kW, 5kW Solid State TX, 250W Complete Transmitter, 3 Band Audio Processor, STL, MW STL; 100-, 200-, 50, 500-Watt Solid State Transmitter.

Cablewave Systems Inc. 11954

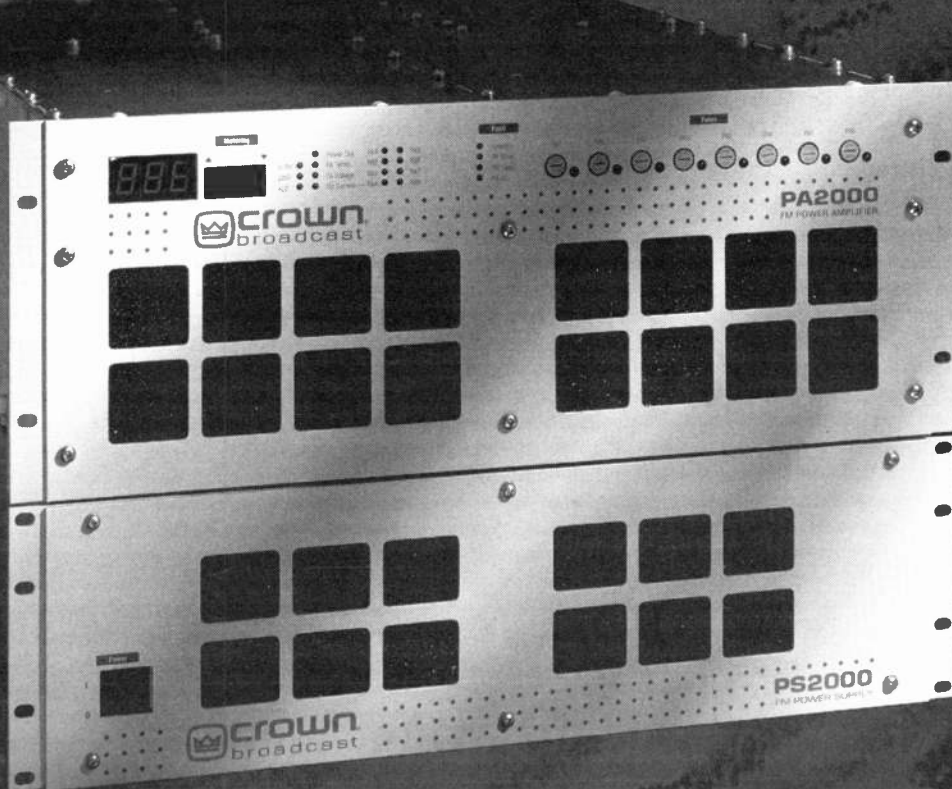
On Display: Coaxial transmission line cable, air dielectric cables, radiating cables, microwave antennas, broadcast antennas, elliptical waveguide; RF and microwave transmission line products including low-loss foam coaxial cable, microwave, MMDS and broadcast antennas.

Calrec Audio Ltd S3976

Canare Corp. of America 11944

On Display: Cable, connectors, patch-bays for analog, serial digital and satellite.

Efficiency: (e-fish'en-see) n. 1. the most effective use of available resources; 2. great things in small packages; 3. Crown's new FM 2kW amplifier.



Stop the presses on all dictionaries! We're redefining efficiency with our new 2 kW FM amplifier. This **broadband** amplifier requires no field or factory tuning and provides **75-80% RF efficiency** across the band. The design features **hot-pluggable, 500-watt power modules**, and a responsive protection mode. The separate DC supply is **power factor corrected** and 90% efficient. Both units are **lightweight and compact** for easy installation and overnight shipping if required. Use the amplifier and supply with your existing exciter or upgrade to a Crown exciter for an unbeatable transmitter package.

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CartWorks/dbm Systems Inc. 2326
Intro: CartWorks Plus Digital Audio Systems, more speed and speed. Windows95 based features include dial-up networking, Internet audio transfer, email, remote control, live assist, satellite automation, music-on-hard drive and more.
Also: CartWorks Digital Audio System; CartWorks Digital Editing System.

CCA Electronics 3009
Intro: Solid-state FM transmitters, 500 W to 2,000 kW.
Also: Line of AM, FM and shortwave broadcast transmitters to 100 kW.

Central Tower 1717
On Display: Turnkey installations to include tower, antenna, line; guyed towers up to 2,000 feet; structural analysis by in-house engineering department; self-supporting towers up to 500 feet.

Circuit Research Labs Inc. 2106
Intro: New digital audio processors DP-100 all digital audio processor with improved stereo enhance. DRX Dynamic Range Extension, processing day-parting and external remote control.
Also: A complete line of TV audio processing including Stereo Generators, SAP Generators, and PRO Channel Generators; Stereo loudness controller, single ended audio noise reduction systems; mono TV processing system; FM/AM modular, signature and Amigo series audio processors; TVS series for television stereo processing and generation, SC-100 RBDS generator; MBL-100 for shortwave and news/talk and more.

Clark Wire & Cable 7871, 1721
Intro: Designed for broadcast, production and post production applications, for high bit rate serial design; Hannay Portable and Stackable Reels for mobile broadcasting applications or wherever space or durability is an issue.
Also: Custom Cable Assemblies, complete line of digital cables, remote composite and triax cables.

Clear-Com Intercom Systems 11565
Intro: PS-464 Intercom Panel Supply powers from one to four channels of intercom and supports up to 60 headset stations or 20 speaker stations. Program input is assignable to any or all channels, and it fits into one rack space: MS-232

Two-Channel Main Station with two channels of intercom supports up to 60 belt-packs or 20 speaker stations. There are talk and call buttons and listen level controls, as well as program feeds and Channel A/B linking.

Also: Matrix Plus digital point-to-point intercom system, headsets, single and multi-channel intercom stations: TW20 two-way radio interface, beltpacks, IFB systems, wireless intercom systems.

Coaxial Dynamics 3909
Intro: Terminating RF liquid/air loads, terminating load resistors liquid-air convection - 50 Ohms (600 W/10,000 W).
Also: RF directional wattmeters; RF station monitor/alarm system (transmitter protection); RF filters (band pass/low pass/filter-couplers).

Coffey Sound 1428
Intro: Deva by Zaxcom Audio, four-channel 20-bit hard disk field recorder with removable hard drives, RS-422 control.
Also: Complete lines of major brand audio for production recording, playback and walkie-talkies.

Columbine JDS Systems, Inc. 10454
Intro: PARADIGM, integrated broadcast management system features a single relational database and function-based modules.
Also: MCAS-III (Master Control Automation) provides full integration between traffic and master control.

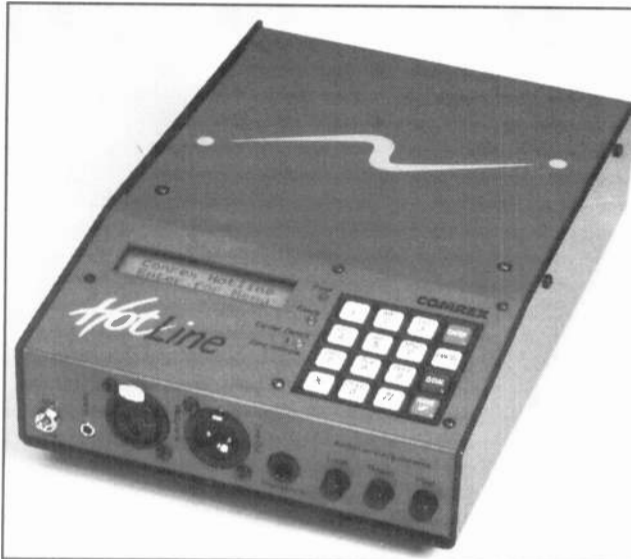
Comark Communications Inc. 7414
Intro: Solid State UHF and VHF digital and analog transmitters, 500 Watts to 60kW.
Also: Digital Advantage TV family of transmitters, air- and water-cooled at all power levels; IOX transmitter line - smaller footprint "Compact IOX" incorporates all of the unique features of the standard IOX including microprocessor "Intelligent" transmitter control; AM Medium Wave transmitters.

Communications & Power Industries (formerly div. Varian) 5604

Communications Equipment Sales, Inc. 54074
On Display: CES provides international broadcasters with an alternative full-line source of U.S.- manufactured broadcast equipment.

Computer Concepts Corp. 2024
Intro: Maestro digital audio system, integrated digital storage and playback system; NewsRoom, wire/audio capture and editing system; Visual Traffic, 32-bit Windows-based traffic system.
Also: DCS; Cartrack; VoiceTracker; StudioFrame.

Comrex Corp. 2121
Intro: HotLine sends and receives up to 10 kHz full duplex audio on standard



Comrex HotLine POTS Codec

dial telephone lines. It is light weight, easy to operate, and suited for remote broadcasts, news, weather, traffic, sports.

Also: ISDN codecs; frequency extenders; remote mixers; telephone couplers; Wireless Cue systems.

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COMSAT Corp. 11922

Comtech Antenna Systems Inc. 8753

Comunicacion Integral Consuliores S.L. M7444

Continental Electronics Corp. 2606
On Display: Line of AM and FM radio transmitters and associated RF equipment; gear for DAB, television and broadcast studios; equipment from subsidiary companies Telefunken Sendierchnik and Contintel Lensen; also CEC Broadcast Supply Division will exhibit studio, monitoring, remote control, FM antenna equipment.

Cooper Sound Systems, Inc. 1404
On Display: CS 106 + 1 / CS 108 + 1 Professional Stereo Mixers; CS 104 ENG/EFP Audio Mixer.

Crouse-Kimzey 1907
On Display: Company represents over 325 different manufacturers.

Crown Broadcast/Crown Int'l. 2418
Intro: FM2000 transmitter; 1 kW and 2kW amplifiers, only 70 W of drive power required for full output power, 75-80 percent efficient, requires no tuning, hot-swappable 500 W power modules, separate DC power supply is factor-corrected to provide 90 percent efficiency and compliance with future regulatory standards.
Also: FM 30; FM 100; FM 250; FM 500; FM transmitters.

CTE International 3824

Cutting Edge Technologies 3006
Intro: Fully digital broadcast transmission processor.
Also: Radio transmission processors, includes software control by modem; Dividend Composite Filter, provides full spectrum protection.

•D•

Dalet Digital Media Systems 1519
Intro: TeamRadio, a software package for effective management of traffic and billing; Dalet Web Publisher, software module to create and maintain a truly active web site; Dalet News, full integration of text and audio for easy scheduling and airing of news; NetBack, a backup solution that alleviates the worry of server failure; Surfer8, multitrack editor that allows simultaneous edit and record.

See OWNERSHIP, page 55 ▶

ALTRONIC RESEARCH INC.
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Model 3500 Digital Calorimetry
 For Air or Water as featured at NAB '96

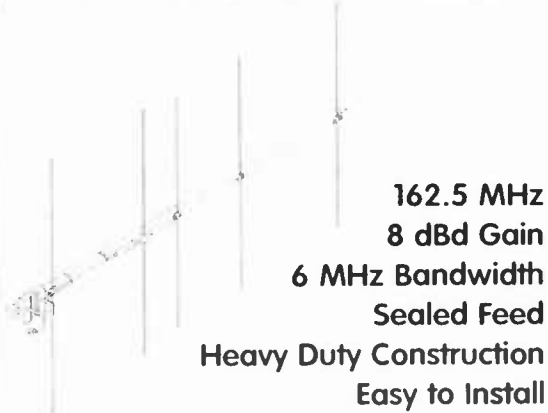
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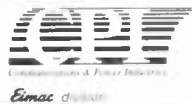
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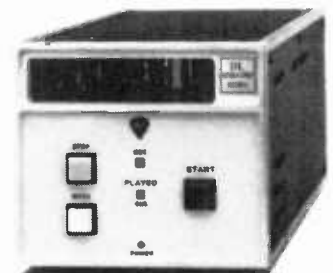
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READER SERVICE NO. 125

► continued from page 53
Dan Dugan Sound Design 1404
On Display: Model D automatic mixing controller; Model D-1 live mic processor.

Datacount Inc. 1527
Intro: DARTS, Datacount Account Receivable and Traffic System, in single and multiuser versions, encompasses all aspects of logging, traffic, co-op billing, accounts receivable and, sales and management reporting.
Also: DARTS EL; MusicBox; Salescall.

Datatek Corp. 8814
Intro: D-2600 16 x 4 digital video/digital audio switcher combines 16 x 4 digital video and digital audio routing in 1 RU frame, for monitoring applications and switching to a small number of destinations; D-2600 64 x 16 digital video routing switcher provides switching for a large number of inputs in a 2 RU package; D-2600 digital audio and RS-422 routing, additions to D-2600 family of 32 x 32 routers, to provide all-format switching.
Also: D-2800 routing switcher system, all formats for systems to 1024 x 1024; D-2600 routing switcher, all formats, for systems 32 x 32.

Dataworld 2624
Intro: Digital TV coverage and interference analysis package; CD-ROM database software; GIS-ready coverage data for broadcasters worldwide.
Also: AM, FM, TV, LPTV, wireless cable databases: current year and five-year demographic data; custom mapping; 24-hour dial-up and Internet access.
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 Bethesda, MD 20814
 telephone: (800) 368-5754
 fax: (301) 656-5341
 e-mail: info@dataworld.com
 Web site: www.dataworld.com

Davicom Technologies Inc. 9453
Intro: DAB Antennas, rugged antennas available in two versions, 250 W and 1,000 W; broadcast omnibus panels, adjustable sectorals available; MACNET, remote control management software with fully graphic interface.
Also: FM/TV transmission antenna; remote control system; audio/video presence detectors; audio/video switchers; RF cables and connectors.

Dawn Satellite Inc. S3071
Intro: Dual Axis 3.8-meter Satellite Antenna, allows reception from any inclined orbit or geostationary satellite; COVERSAT, cover for satellite antenna to prevent signal outage due to snow accumulation; software to control satellite antenna and receivers.
Also: Satellite antennas; satellite receivers; LNB amplifiers; full line of satellite downlink equipment.

DB Elettronica
Telecomunicazioni S.p.A. 1027
Intro: KF1000, solid-state 1 kW FM amplifier; P4300, compact 300 W FM transmitter with audio processor optional; MMT-DMT digital modulator; KBU 1000 UHF solid-state TV amplifier, modular assembly, high redundancy, low-power consumption, broadband; HMT-HMR Microwave TV Links; KTU 10000 TV Transmitter, air-cooled, single tube.
Also: Stereo generators, FM transmitters, digital and analog STLs, antenna systems; TV transmitters; TV transposers; digital/analog microwave TV links; antenna systems.

DCM Inc. S2100
On Display: NewsTrac, Windows 95/NT-based newsroom automation system. With more than 140 installations in U.S., DCM is one of the largest, independent suppliers of newsroom automation software.

Delta Electronics Inc. 2109
On Display: Operating impedance bridges, receiver/generators, RF ammeter systems, splatter monitor, high-power pulse reflectometer, stereo noise generators, coaxial transfer switch, toroidal current transformers, AM stereo exciters and monitors, and analog antenna monitors.

Denon Electronics 1021
Intro: DN-M1050R MiniDisc recorder, edit/control from any standard IBM PSR keyboard, hot start; SMPTE and sample rate converter options available. DN-C680 CD Player with indexing, jog/shuttle wheel; SMPTE and sample rate converter options available.
Also: DN-951FA and DN-961FA CD cart players, DN-650F and DN-600F CD players, DN-610F combi-deck, DN-790R, DN-770R, DN-740R, DN-730, DN720R cas-

sette decks, DN-995R, DN-990R, DN-80R, DN-1100R MiniDisc recorders, DN-981F MD player, DN-1406F CD jukebox; DCM-30P and DCM-60P CD changers; TU-380RDs AM/FM/RDS tuner.

Deutsche Telekom S2863
Intro: A new system for terrestrial delivery of Digital Audio Broadcasting, CD-quality plus additional data services; digital transmitter technology for short-, middle- and long-wave broadcasting. New outlooks for digital TV production with HTM in Broadcast; D-SNG, digital SNG services.
Also: ISDN and satellite distribution services; VIDISHT, satellite distribution of TV signals.

DGS Pro-Audio 3728
Intro: Deltron Ring Lock Din Connectors, chassis sockets and cable plugs quick to connect and release; Deltron Channel

Identification Systems, easy identification of channels for XLRs.
Also: Deltron Connectors, XLRs 1/4 plugs, RCAs; Midi Gotham Cable; instrument cable, multicore mic cable, multipair cable and digital cable.

Dielectric Communications 7976
Intro: digitGuide waveguide allows combining of multiple channels (UHF) into one waveguide run; DC-10JSC antenna, an adjacent-channel slot-type antenna.
Also: UHF/VHF NTSC and DTV antennas, FM antennas, transmission line, waveguide, filters, switchers, combiners and related equipment.

Digidesign S2231
Intro: Pro Tools v4.0; AudioVision v4.0; Universal Slave Driver; LoFi/SciFi TDM
 See page 56 ►

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Audition Window

► continued from page 55

Plug-ins; Sample Cell II PCI/Windows; Audiomedia III; Dolby Surround Tools; Drawmer Dynamics TDM Plug-in; QDesign i-Media Audio.

Digigram 3912
Intro: PCXpocket, the first PCMCIA type II card for recording and editing professional audio on laptop computers; PCXtools, a software package for rapid designing of custom applications on Digigram's PC-based audio cards.
Also: PCX digital audio boards; Xtrack multitrack editing software for audio only and audio for video.

Digital Courier International 3326
On Display: Broadcast delivery system for audio distribution.

Digital DJ Inc. S1251

Direct Connections M7440

Disc Manufacturing Inc. M7442

Dolby Laboratories S206, 8940

Dorrough Electronics 72J9
Intro: Audio Reference Generator.
Also: The Dorrough Loudness Meter.

Doty-More Tower Services Inc. 4938

Dove Systems 6807

•E•

Econco 3916
On Display: Rebuilt power tubes; rebuilt Klystrons for radio and TV transmitters.

Edac Inc. S4974

EDX Engineering Inc. 1624
Intro: SignalPro PCS/Cellular system design add-on module, for automatically laying out a hexagon grid of base stations to achieve service objectives, assign frequencies with standard reuse patterns; SignalPro Microcell 3D Ray-tracing add-on module, ray-tracing propagation models explicitly consider the location of building walls, corners and physical characteristics.
Also: AMW; FMSR; TVSR; Signal; MSite; SHDMP; TPath; RPath; CVR; Pop-90; SignalPro.

EEV Inc. 9558
Intro: Higher and lower power additions to the EEV range of digital IOTs, characterized for digital applications; EEV Stellar range of satcom amplifiers, types N6130D and N6150D incorporate remotely controllable digital attenuators.
Also: 4CX range of power tetrodes for AM/FM transmitters. Analog IOTs, conventional klystrons and ESCs for UHF TV transmitters; Leddicon camera tubes for studio, EFP/ENG cameras.

Electric Works Corp. 2328

Elenos 3601
On Display: FM amplifiers/transmitters from 150 - 1000 Watt Solid-State; FM amplifiers/transmitters from 800 - 30000 Watt tube type; Exciters; Antenna Systems.

Enco Systems, Inc. 1024
Intro: DAD Pro32 Digital Audio Delivery System.
Also: DAD Pro Digital Audio Delivery System.

Energy-Onix 4006

Equi-Tech Corporation S1065
Intro: Model ET5R-ETL listed Power Line Conditioner, a rack mount unit with 5000Watt capacity; Model ET1R-ETL listed power Line conditioner, a rack mount with 1000 Watt capacity
Also: A complete line of balanced power AC systems including rack-mounted and wall cabinet systems, in a range of power handling capacities. Systems are available with a variety of options and custom systems are available.

ERI 3615
On Display: Antennas, Towers, Lighting Protection and Grounding Systems

ESE 7227
Intro: Lx-5105 & Lx-5116 are self setting Analog Clocks that can self set hands by receiving several different Time codes; Pc-471 Time Code Interface card for P.C's, receive either SMPTE or ESE Time Code to synchronize the P.C's internal time of day clock to an accurate source; Lx-221 is a six output Black Burst Generator with stand-alone and Genlockable modes.
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Euphonix 3318
Intro: CS3000 Digital Control Analog Mixing System has total automation, snapshot recall, motorized faders, hyper surround for all surround formats.

Event Promotion Supply Inc. S1031

Eventide Inc. 4101
On Display: DSP4000 Studio Ultra Harmonizer; DSP4000B Broadcast/Production Ultra-Harmonizer; GTR4000 Guitar Ultra-Harmonizer; H3000 Series Ultra-Harmonizers including H3000B+; H3000B/LT; H3000D/SE; H3000D/SX; H3500DFX; H3500DFX/E; H3500B-DFX; H3500B-DFX/E; BD500 broadcast delay with dump and catch-up; BD941 and BD942 broadcast delays; BD1020 video delay; VR204 and VR240 digital loggers; ECW40 master satellite chronometer.

•F•

Fairlight USA 8276
Intro: MFX3plus digital audio workstation: 24-track recording and editing workstation featuring AudioBase clip database and 100Mbit fast networking solution; FAME audio mixer editor: fully integrated digital production environment with new features including automated dynamics on every channel, LCRSS mixing and GPO fader starts; DaD enhanced digital audio dubber: up to 24 tracks of MFX3 playback with increased processor speed, expanded memory and faster hard disk access.

Fidelipac Corp. 1902
Intro: MX/D Digital Broadcasting Console featuring analog and digital inputs, analog and digital output buses, sample rate con-

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verted digital inputs, 24-bit processing and 16 source inputs.

Also: MX Series analog on-air console; DCR series digital cart machine; CTR series analog cart machine; studio accessories.

FirstCom Music 8779, 1906

On Display: All the best music in the industry or your money back, 100% guaranteed.

Flash Technology Corp. of America 1509

FM Systems Inc. 4855

Intro: VLS770- Video Loss Switcher switches to secondary video upon loss of primary video automatically; also has EAS feature.

Also: ALM Audio Level Master (automatic audio gain control); VM771, Video Master, (automatic video gain control); subcarriers; test meters.

Focusrite Audio Engineering/ Group One 1514

Intro: Green 4 Dual Compressor/Limiter, two channels featuring a compressor with threshold, attack release and hard knee and stereo link, a limiter with threshold, look ahead, and release; Green 5 Channel Strip, an input preamp for mic, line or instrument, a six-band equalizer comprised of high pass filter, low pass filter, low shelving, high shelving.

Also: Blue and Red Range of audio processing tools for studio recording and broadcasting applications.

Fostex Corp. of America 6357



Garner Industries 7230

Intro: Garner MGD3 designed for erasing high-correctivity tapes, cassette reels and hard drives, uses electro-magnetic coil technology.

Also: Models 105; 682A; 682B; 1400; 1600; 4000; 2400; 2700.

GE American Communications 7429

Intro: GE-1, GE-2 and GE-3 communications satellites, satellite communications services for broadcast applications.

GEC-Marconi Communications Ltd. 1701

Intro: Eureka-147 DAB repeaters, low-power gap fillers.

Also: Band III Eureka-147 DAB equipment; FM1000 1kW FM transmitter; antenna systems.

Gefen Systems 1621, S3026

Intro: PC-MAC 241, hardware that switches between a Macintosh and PC while using only one monitor, keyboard and mouse device; VDX600, video distribution amplifier, R6BHV; PCX Series, hardware that extends monitors and keyboards up to 350 feet away from PC; TSE 241, hardware that switches between two or more Macintosh computers while using only one monitor, keyboard and mouse; TTM-MPEG, software for broadcasting files organized in MPEG-2 format files and DVD; M&E Professional Version 2.4, database software that organizes, locates and auditions sound effects libraries; 3DFX Sound Effects Library from The Hollywood Edge.

Also: CDJ NET automated music management system for music CDs designed for broadcast cable systems, hotels, casinos, and restaurants; TSE & ADB series monitor and keyboard extenders for Macs.

Genelec M8168

Intro: 1029A Compact Active Nearfield Monitor, featuring a 5-inch woofer, 3/4-inch dome tweeter with 40 W amplifier,

aluminum enclosure (black or grey), front mounted on/off switch and volume control; 1091A Active Subwoofer, designed to be used with 1029A Active Monitors, 70W amplifiers with stepped attenuator at -2, -4, -6, -8 db to match room.

Also: 1030AP, 1031A, 1032A; Bi-amplified Active Monitors, 530C, 1037B, 1038A; Tri-amplified Active Monitors, 1029A, 1094A; Active Subwoofers, 1033A, 1034A, 1035B, 1039A; Large Control Room Active Monitors.

Gentner Communications Corp. 2117

Intro: DF Digital Hybrid, dual digital hybrid provides clear audio from up to two phone lines simultaneously; auto mix minus, CE approved; DH 20 Digital Hybrid, single digital hybrid with auto mix minus, caller control, auto answer, auto disconnect, CE approved; GSC 3000 Voice Interface, provides dial-up

access to the GSC 3000 site controller for remote transmitter control, simulates a command, caller responds with DTMF commands.

Also: TS612 multiline on-air phone system; GSC3000 site control system.

GEPCO International Inc. 11984

Intro: 7537 "Supertrunk," a miniature serial digital coaxes in 5, 10, 12 and 25 color codation, extremely flexible; 7538 miniature serial digital cable with 23 awg solid center conductor, durable, low loss foam, dielectric, foil and 95 percent tinned copper, 34 awg braid improving low frequency shield effectiveness; Remote Optical Fiber available in two, four, six or eight fibers, single or multimode tight buffer for simple rugged terminations, operating temperature from -40degrees C to +85 degrees C.

Also: Wire and cable including audio, video, data and fiber optic; custom products are cable assemblies, breakout boxes, direct boxes and panels.

Gorman Redlich Mfg. Co. 1910

Graham-Patten Systems 10976

Intro: A-to-D converter; D-to-A converter; digital summer; Fidelipac Dynamix MX/D Digital Broadcast Console; Play Incorporated's Trinity Video Productions Studio.

Also: D/ESAM Series Digital Audio Suite Mixers; D/ESAM 200, outputs, monitor sub-mixer, fader limits, user configuration registers, D/ESAM IV protocol, D/MEM write protection, Ampex Ace 200 editor interface; D/ESAM 400, fader limits, user configuration registers and D/ESAM IV protocol.

See page 58 ▶

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► continued from page 57
Group One Ltd.

1514

•H•

H.L. Dalis Inc. 11180
Intro: Belden Wire and Cable; Switchcraft and Neutrik Audio Connectors; Kings video connectors; Sony tape, headsets and microphones; crimping tools and strippers

Halland Broadcast Services Inc. 4012
Intro: Hitdrive Music Service, custom music formats, pre-loaded on hard drive or on optic disc, digitized music files available in MPEG or DOLBY AC-2, either DOS or .WAV versions. All at 48K sample rate, compatible with most broadcast automation systems. Typical 800-song library can be loaded in one day. Hitpick

custom playlist software lets you pick the songs you want from inventory of 4,000+ tracks. Oldies, 70s gold, AC, CHR, classic rock, and country formats. Selected tracks are then loaded to hard drive.
Also: Music libraries on compact disc: oldies, 70s gold, AC/CHR, country.

Harman Pro North America
On Display: See AKG, BSS Audio, JBL, Soundcraft and Orban.

Harris Corp., Broadcast Div. 5909
Intro: DX Series 10 and 50 kW Medium Wave Transmitters, combine Harris-patented Digital Amplitude Modulation and solid state technology. Redundant circuits are used in all critical areas, and multiple broadband solid state RF power amplifier modules with an MTBF (Mean Time Between Failure) exceeding 6 million hours operate in parallel. Has built-in

surge protection on all AC mains; Harris DRC1000, Digital Audio Radio Console has 32-bit digital signal processing, LED source labels and lighted soft keys. The Audio Processing Unit includes 11 stereo (22 mono) AES3 digital inputs. The console accepts 33kHz, 44.1kHz or 48kHz in either AES3 or SPDIF. The APU provides 7 stereo (14 mono) AES3 output busses which are simultaneously available in digital and analog. Standard features include 5-band parametric equalizer, one or all five Eqs may be used simultaneously on any input, pan, compressor/limiter and AGC. Options like reverb and pitch shift are available.

DIGIT CD Digital FM Exciter generates an on-air signal with true 16-bit digital audio quality, available with an analog or AES3 input module. DIGIT CD provides 83dB stereo signal-to-noise performance and has a standard synchronous AM reduction circuit; CD2001 CD Cart Machine includes automatic servo adjustment and on-board 16-bit microprocessor, autolock, Index 3 subcode recognition; Orban DSE 7000FX Digital Workstation features Orban parametric equalization, Optimod compression, and Lexicon digital reverberation; A2D2A A/D-D/A Converter is 20 bits and can perform its A/D-D/A functions simultaneously; Orban AirTime Digital Delivery System provides ready access to audio and support information from a single database, accomodates virtually every function in a station and is available with a variety of interfaces including cart machine emulators, sound slate keypads, touchscreens and workstations.

Digital TV Transmitters feature Harris CD 1 (implements FCC-approved 8-VSB standard); CD 1, 8-VSB DTV Exciter uses digital modulation techniques and proprietary filtering; Solid State RF LDMOS UHF and DTV Television Transmitters are available in analog(NTSC/PAL) or digital t.v. models with Harris CD 1 Television Exciter; Solid State Silicon Carbide DTV Transmitters feature Westinghouse's Silicon Carbide solid state devices available for digital t.v. with Harris' CD 1 8-VSB Television Exciter; PlatinumCD Solid State VHF DTV Transmitters combine Harris' industry-standard FET solid state VHF transmitter line and Harris' CD 1, 8-VSB Digital Television Exciter; S-15 Mobile Digital Satellite Uplink System is built on a versatile 4x4 sport utility chassis. The system includes a 1.2-meter Ku-band antenna, Harris DSE/R1400 Digital Exciter and Receiver, satellite monitoring and control, baseband equipment and on-power generator.

Also: SigmaCD IOT UHF DTV Transmitters combine the highly-efficient IOT and Harris' CD 1, 8-VSB Digital Television Exciter; M-1ENG Mobile News Gathering System is available on a variety of chassis and is configured to each customer's specifications. The unit is equipped with a 52-ft mast, a Microwave Radio 2 and 7 GHz dual band Van Pac microwave system, Phillips DVCPRO camera and tape deck, and on-board power; Digital Television and Production Systems include Allbritton's TV Alabama Channels 33/40 and ABC Jacksonville/Brunswick Channels 21/25, Georgia Public Broadcasting, The Weather Channel, The Discovery Channel Latin America, and Sinclair's WPGH/WPPT, Pittsburgh, Radio Systems display clocks and RS-12 console.

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Harrison by GLW Inc. 3315
Intro: Series Twelve/MPC Version 4 Software enhances graphic displays and features added to improve speed and functionality of automation system, new

film and post production functionality.
Also: Series Twelve digitally-controlled analog console; MPC motion picture console; TV950 Broadcast console, digitally-controlled analog console.

Henry Engineering 4012
Intro: Audio OnLine, caller-interactive listener information system provides information to listeners/viewers via telephone. Answers up to 16 phone lines, with hundreds of menu-selectable messages available to callers. Hours of recording time, very high audio quality, suitable for re-broadcast. Ideal for use by radio/TV stations; Hitdrive Service, custom music formats, pre-loaded to computer hard drive.

New "Hitpick" software creates a custom playlist. Digitized music files available in MPEG or DOLBY AC-2, in DOS or .WAV versions. Music tracks loaded to hard drive on one day. Digicord II, Digital audio recorder in-a-box, improved audio quality, lower noise and distortion. Records with either 5K or 8K bandwidth, up to 5:25 recording time. Up to 16 separate messages with random-select playback and remote control of all functions possible. Mic and line inputs.

Also: Matchbox II, Twinmatch, USDA, Stereoswitch, Digistor, Micromixer, Mixminus Plus, and other "problem solving" products.

Herman Electronics S3121

Hewlett-Packard Co. 8071
On Display: Test and monitoring equipment.

HHB Communications Ltd. 1524
Intro: Genex GX8000 disk recorder offers tape-like operation, simple in/out and overlay recording (for ex., recording while monitoring previously recorded tracks). Is suitable for applications in broadcast, TV, film, and music recording as well as anywhere a tape multitrack is currently used. Up to four tracks can be recorded simultaneously at a sampling rate of 96kHz; Motionworks R2P2 Remote Control is connected via a single 9-pin D connector which allows the R2P2 to identify the serial machine from an on-board library and display its name. All function keys and internal menus are automatically configured depending on the machine connected. A jog/shuttle wheel is provided alongside standard transport buttons. R2P2 can be used for identifying machines on serial patchbays or routers in large installations.
Also: PORTADAT professional portable DAT recorders, HHB Advanced Media Products, CEDAR audio restoration systems, Pioneer DAT recorders, ATC monitors and Coles microphones.

Hipotronics 1917

Holiday Industries 6645
Intro: HI-3510 RF/Microwave Monitor for RF radiation detection from 50 MHz to 2.5 GHz, adjustable audible alarm and flashing LED and LCD indicators; HI-3702 clamp-on induced current meter to allow hands-free measurements and eliminate concern over complete foot contact or body stature, measurements possible while walking or climbing; NAPTEX RF Protective Clothing allows personnel to work safely in ambient RF fields while providing protection of up to 40 dB at frequencies in the range of 2 MHz up to 10 GHz.
Also: HI-4000 RF Hazard Measurement System; HI-3701 Induced Current Meter.

Hughes-JVC Technology Corp. M6544

IDT S2336
Intro: Sound Style is Plug and Play and has remote control, user-friendly interface,

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Circle (57) On Reader Service Card

"on-line" compatibility, scheduler, is factory presets.

Also: Audio Processor Range has FM/TV/AM sound design available in a 5- or 7-band version with remote control.

Illbruck Inc. 1512

Intro: SONEX classic Polyurethane, a re-issue audio and broadcast product known for its audio performance and durability; SONEX modular enclosure system sound booth for voice over and broadcast booths with door and window modules that virtually snap together.

Industrial Acoustics Co. Inc. 10462

Intro: High-performance tuned studios, completely guaranteed; special acoustical doors and windows.

Also: Standard doors; windows; silencers; diffusers; studios.

Innovative Quality Software M6860

Intro: Saw Plus32 plays up to 16 mono or stereo tracks, supporting 16 I/Os on almost any Windows-compatible soundcard; Saw 32 plays four stereo tracks on almost any Windows-compatible sound card.

Also: Saw Plus plays up to 16 mono or stereo tracks on almost any Windows-compatible sound card; Saw plays four stereo tracks on almost any Windows-compatible sound card.

Inovonics Inc. 1612

Intro: Model 701RDS encoder allows quick and easy installation, simple programming; Model 540 FM Subcarrier Monitor works with any Mod-Monitor, measures injection of all SCA, RDS and high-speed data subcarriers, displays SCA deviation/modulation, optional RDS decoder; Model 635, AM Broadcast Processor offers gain, AM AGC, three-band compression, two-band limiting, asymmetry optimization, NRSC and AMAX compliance.

Also: AM/FM/TV audio processors; FM stereo-generator; "DAVID-II" FM processor/generator; FM Mod-Monitor; FM Rebroadcast Receiver; RDS encoder; RDS decoder/reader; "TVU" On-Screen Audio Level Display Keyer.

Intelsat S2370

International Datacasting (U.S. Sales) 1703

Intro: EchoWeb, works with EchoCom, supports the distribution of Internet/Intranet WWW pages over a one-way broadcast channel; EchoNet, expands the capability of EchoCom and EchoWeb, broadcasts a wide range of Internet/Intranet information including WWW pages, E-mail, news groups and Real Audio; CR253 and CR263 cable receiver PC cards, data broadcast receiver for cable applications at 256 kbps.

Also: FlexRoute and MPEG Pro satellite digital audio broadcast systems and network control software. FlexData and DataNet satellite data broadcast systems and network control software. EchoCom Multimedia Data Broadcasting Software.

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Intraplex, Inc. 3901

Intro: STL and Duopoly/LMA applications complete with audio sources, voice and data being intraplexed from a simulated studio to the transmitter site and remote studio with remote pick ups being intraplexed back to the main studio. Four audio coding options: PT/R-350 series, 16-bit, linear, uncompress audio, PT/R-355 series, CCITT J.41 (14:1 bit) compressed audio algorithm, PT/R-150

series, APT-X (4:1) compressed audio algorithm, PT/R-250 MPEG Layer II, and AES/EBU digital capabilities.

Our 4464 Codec demonstration will illustrate ISDN compatibility by calling and communicating with other codecs in the market; T1 Over Video does an STL solution for TV stations maximizes the efficiency of video microwave systems by combining multiple audio, voice and data application into one subcarrier.

Irte S.p.A. S2850

ITC/Ahead Technology 6211

Itelco 5742

Intro: 20 kW solid-state water-cooled TV transmitter; 200 W L-band transmitter; portable microwave system.

Also: Amplification TV transmitter line; solid-state FM radio transmitter line.

Jampro Antennas Inc. 6709

Intro: JBCP-M, a medium power rototiller FM sidemount antenna. Shunt fed, 50 OHM, DC grounded antenna factory tuned on a similar structure for maximum VSWR bandwidth; RCBC a low power bandpass combiner; JHD-HR2 low power band III panel antenna. *Also:* JMPC; JHPC; JSCP; JCPD; JAHD; JLST; Rigid coax and related components; JAHD-UHF panel antenna; JA/LS - UHF slot antenna; JTW - Traveling wave slot antenna.

JBL Professional 6940

JK Audio S1631

Intro: Remotemix 3, phone line hybrid and handset interface, an all-in-one, two-mic mixer with two headphone jacks, keypad; QuickTap IFB, telephone handset IFB tap goes between the handset and the base of your analog or digital PBX Telephone; THAT-2, telephone handset audio tap goes between the handset and the base of the analog or digital PBX telephone.

Also: QuickTap; THAT-1; Pureformer; Reomtemix; RemoteMix C+; TAP-1; GetIR.

Kathrein-Werke KG 9053

KD Kanopy Inc. 3427

On Display: Canopies; tents; signage products

Killer Tracks 5051

Kintronic Laboratories Inc. 3609

Kline Towers 11867

Intro: Custom design, fabrication and erection of tall broadcast towers, redesign and reinforce existing towers for revised equipment loading.

Korg USA Inc./Soundtracs USA Inc. S5763

On Display: Soundtracs Virtua digital console; Soundtracs Jade S; Soundtracs Solitaire. Korg: Soundlink DRS 168RC recording console; Soundlink DRS 1212T/O PCI Card; Soundlink DRS RM8.

KRK Systems Inc./Group One Ltd. 1514

Intro: Expose Series (E7 and E8) of studio reference monitors, bi-powered, fully bridged system with 400 W of continuous power per speaker, phase aligned and contoured for a frequency response 45-20 kHz (+/- 2dB).

Also: Line of reference monitors including the M6000/S, M7000B/BS, M9000B, KR0Ks and the RoK bottom subwoofer.

L

Larcant-TTC Inc. 9953

Intro: Digital radio transmitters for L-band, 125 W, and Band III, 250 W, both are Eureka-147 compliant featuring COFDM encoder, VSWR protected, baseband for IF or VHF input, and built-in diagnostics. *Also:* the "Landmark" series of DTV transmitters designed for ATSC standards.

Also: 100 W, 500 W and 4 kW FM transmitter; 10 W FM translator; 10 kW FM transmitter. Tower analyzer; 10 kW FM transmitters to determine capabilities of existing towers for adding antennas, solid state 10 kW Larcant UHF transmitter; 30 kW all solid-state VHF transmitter.

LDL Communications 9953

Intro: Landmark series of DTV transmitters for ATSC standards that includes the

company's new control system technology and ATSC compliant exciter

Also: Demonstrations for tower analysis to determine capabilities of existing towers for the purpose of adding antennas for new digital services; solid state 10 kW UHF transmitter; 30 kW all solid-state VHF transmitter; Lodestar, a demonstration of RF propagation analysis to show that site management users have a good idea of the coverage area before installation of RF facilities; low-power television transmitters.

Leader Instruments Corp. 8760

Intro: Compression Analyzer compares original-source compressed material to highlight/display, compression artifacts, frame delay timing adjustable for frame alignment.

Also: LV 5100D Digital/Analog Component Monitor; LT 425D Digital Test Signal

See page 60 ▶

The RF radiation meter for people who don't spend their lives using radiation meters.



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Designed for both novice and experienced users, the new 8712 Survey Meter is compact, accurate and cost effective. Features like a large-character LCD readout, one-touch Auto Zero, and audio/visual overload warnings make the 8712 virtually fool-proof.

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► continued from page 59

Generator; full line of video/RF monitoring and generation instruments.

Lectrosonics Inc. 8372

Intro: Synthesized UHF wireless microphone system for studio, stage and ENG production, includes belt-pack, hand-held and plug-on transmitters, rack mount and compact, battery powered receivers; Synthesized UHF wireless IFB System for talent cueing and remote monitoring; QUAD195D diversity quad pack for 195 series compact receivers designed for high-end TV and motion picture production.

Also: Wireless microphone systems for ENG and studio applications in a wide variety of UHF and VHF versions; Belt-pack, 'plug-on' and hand-held transmitters.

Leitch 8640

Intro: MPEG-2 Compression System with Noise Reduction Module features broadcast-quality distribution MPEG-2 signals that permit the exchange of pre-edited and post-edited material between studios and post production houses using standard DS3 telephone lines; Serial Digital LogoMotion Logo Generator displays animated logos in full component digital format, stores up to 99 logos in full-bandwidth uncompressed 4:2:2:4 quality and each is stored with its own full-bandwidth linear key channel for precise linear keying; Serial Logo Generator and Keyer/Inserter accepts standard computer GIF, TIF or TARGA images downloaded through an RS-232 port, with logos stored in uncompressed 4:2:2:4 digital format providing full linear key storage.

Also: DigiBus digital conversion system and new modules that may be purchased or used as independent products to resolve conversion needs; Xpress serial digital switcher with analog audio; a new version of EventWorks automation software; a new version of RouterWorks routing system control software.

Lemo USA Inc. 8835

Lightning Eliminators and Consultants Inc. 8756

Intro: Sandwich Block Direct Buss Technology Surge Protector overcomes

the significant problems of traditional MOV-based surge suppressors and supplies a high-speed, direct bus interface between components; Solid State Ball Gap Surge Protector replaces the conventional air gap AM surge protector; Chem-Rod Expansion Disc has ultra low impedance add-on disc for Chem-Rod grounding electrode.

Also: Dissipation Array System; Spline Ball Ionizer; Chem-Rod Grounding Electrode.

Linear Equipamentos Eletronicos S/A 14845

Link Comunicaciones S.A. 2412

Intro: FM Transposer 200W includes compact FM Transmitter & FM Receiver; FM Transmitter 250W includes Mono-Block unit with built-in exciter; FM Transmitter 3KW includes Amplifier modules plug-in/plug-out and power supply with big margin of voltage.

Litton Electronic Devices 4556

LNR Communications Inc. 4112

Intro: DVE Series (Low Profile Digital Video Exciter), smallest size, 2 RU high (3.5"), end-to-end solution (video IN/RF out), local and remote control, SCPC and MCPC configurations; Safari Digital Video Flyaway Earth Stations, a super light, super compact SNG flyaway, one person set-up (less than 30 min.), patented lightweight Unifold pedestal offers wide stable foot print, C-, Ku-, or dual-band.

Also: Voice/data/video networks; flyaway and vehicle-mounted mobile terminals; tri-band government terminals; IDR/IBS upgrades; LNAs; frequency converters; antennas; video exciters; receivers; modems; fiber-optic links; other equipment for satellite communications.

Contact: Karen J. Robinson, Mgr. Adv./P.R.

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e-mail: kjr@lnr.com

Logitek 2521

Intro: Serial Sound, on-air audio mixing console with all digital signal path, accepts both analog and digital inputs; Numix, on-air and production console

with all digital sound path, special features for integration with hard disk delivery systems.

Also: Ultra-UV meters; Bright-UV meters; Super-UV meters; LED bargraph audio meters.

LPB Inc. 1900

Intro: SALSA, a full Windows NT networking system for multiple station operations offers full multitasking, networking and remote control capabilities, eliminates instability, allows automation, live assist, multitrack production, traffic and billing, logging, music scheduling; studio monitor line from Hayes, Australia, features sound imaging and uses 100% hemp cabinet for enclosure; AIRSHOW2000 Television Spot Automation system features multiple channels, digital broadcast quality video, high speed removable magneto optical storage in turnkey system.

Also: 7000 Series linear fader audio consoles for radio broadcast; Signature III rotary fader audio consoles; AM and FM broadcast transmitters.

LTM Corp. of America 6858

Intro: LUX 24 W HMI Light, a 24 W/12V DC daylight source putting out almost 2,000 W of 5600 degree Kelvin light, camera mountable, can be used in a car; 12/18K Super HMI, a source of daylight in a rugged but lightweight location housing, magnetic or electronic ballast.

Also: Line of HMI and incandescent lighting systems, ranging from 200 W to 20,000 W; line of microphone boom poles; special effects wind machines and magnetic and electronic ballasts.

•M•

Mackie Designs M8038

Intro: 48x8x2 Digital 8 Bus, with meter bridge, built-in hard disk storage for effects libraries and automation sequences, 8MB of RAM, 24 channels of analog tape I/O and UltraMix II automation, DOS-compatible floppy disk drive, add up to 3 8-channel digital cards, Internet connection; also, HUI Digital Audio Workstation, designed in collaboration with Digidesign, to be eventually compatible with other Digidesign DAE compatible software and other DAW systems.

It features eight 100m motor faders, Per Channel 4 character LED scribble strip, dedicated per channel Pan and Send encoders and control, "V-POTS" knob, switches for mute, solo, automation write and record-ready enabling, dedicated plug-in section to edit and automate DSP functions, sectioned switch matrix with automation controls, status views, and F-keys for macro style operations, and more. HR824 High-Resolution Active Studio Reference Monitor, a mass-loaded resistivity-damped 6th-order system, utilizes two 6 1/2" passive radiators, low and high frequency drivers.

Also: Digital 8 Bus; HR824 studio reference monitor; FR Series power amps; SR Series large format mixing consoles; compact mixers; Ultramix Universal Automation System; 8.Bus Series; LM-3204 Line Mixer and LM-3204E expander.

Macromedia M7333

Intro: Final Cut Professional Digital Video Editing, Compositing and Effects for broadcast and multimedia. It is cross-platform video software using open system media layers, and uses QuickTime 2.5 on Windows and Macintosh. Also new is Realtime Option for Final Cut, which supports realtime transition and compositing of titles.

Also: FreeHand; Director; Authorware; Backstage; SoundEdit 16 Plus Deck II; Fontographer; Extreme 3D; Macromedia XRES; Flash.

Magnum Towers Inc. 2324

Manhattan Productions Music 8755

Intro: Tunefinder CD-ROM for IBM or Mac that allows music user to search for, sample and report any cues of music; Apple Trax, 30 CDs of hip, cutting-edge music for broadcast, non-broadcast, multimedia and film.

Also: Manhattan Library - 50 CDs of ageless, specialty music; 6 CD Audiophile Sound Effects Series; Chesky Records Classical Series.

Marti Electronics 2202

Intro: SMARTI telephone remote pick up delivers true broadcast quality audio over standard audio analog telephone lines; Cellcast (newly acquired) remote broadcast studio incorporates 3W cellular phone, four-channel mixer, and frequency extender for on-air by cell phone; T-series high power FM transmitters offer updated circuitry with MOSFET drivers.

Also: The Lynx, a digital stereo generator; solid state AM and FM transmitters; audio consoles.

Martinsound 1301

Intro: Martech modular series high-precision microphone pre-amplifier, parametric equalizer and dynamics unit; rack-mounted processors from Shep Associates, comprising a line of re-issued vintage Neve EQ, mic pre-amps and compressors; multimedia Surround Sound monitoring modules for Elan and Elite Series consoles.

Also: Anatech VCM Series consoles; Martech Modular Series signal processors; Audiomate moving fader automation; Neotek console line; EMT 140 echo plate with upgraded electronics; Shep Associates line of signal processors; Flying Faders Miniconsole Extension; custom projects for selected clients; Elan Post Consoles; Encore Film/Video Dubbing Mixers; Esprit Broadcast Mixers; Essence ADR/Foley Consoles; Elite Production Systems.

Match Production Music S1831

Intro: Tunebuilder, a self-editing music software customized to work with the Match Production Music Library; Tunefinder, a CD-ROM audio catalog

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consisting of short edits of the Match Production Music Library.

Also: Match Production Music Library - 65 CDs; Production Toolbox; Power FX.

McCurdy Radio Industries Ltd. 6917
Intro: D-CAST Multi-Channel Television Broadcast Automation System features flexible Cache control and fibre channel interface to video servers and library system. True Multi-Channel operation identifying common resources and resource conflicts. Interface to various types of broadcast equipment and traffic systems.
Also: McCart Digital Audio Storage System; DCS3000 digital intercom; audio metering and monitoring products, including the ATS-100 Extended Range VU-PPM Meter.

MediaForm M7749

MediaTouch 3621

Meret Communications/Osicom 7424
Intro: Switch BOSS software for System 2000 and Series 36 routing switchers; direct fiber optic outputs now available for System 2000.
Also: Designs and manufactures a wide range of products for broadband coax and fiber optic transmission and video/audio switching system apps under the product names Catel, Dynair and Meret Optical. These include Meret Optical LL500 Serial Digital Link, LL700 FM Video/Audio Link and Catel CFM 3800 multichannel FM/FDM fiber optic transmission system.

Merging Technologies M6673
Intro: Pyramix Virtual Studio is a digital audio workstation for Windows 95 and NT 4.0. It provides for multichannel audio recording/editing, mixing, effects processing, CD mastering, networking. Also new: AIU 8 Audio Interface Unit for the Pyramix Virtual Studio, providing 8 in/8 out with 18-bit A/D and D/A (20-bit optional). XLR connections. Wordclock In/Thru. optical.

Micro Communications Inc. 5607
Intro: UHF adjacent channel combiner combines an adjacent NTSC channel with a DTV channel for combined transmission of both channels into a common antenna; floor mount IOT Output Filter is a constant impedance filter designed to remove out-of-band energy generated in a common mode transmitter that can be floor-mounted and placed next to a cabinet; DTV/NTSC common antenna is a UHF panel antenna system that will accept all UHF channels and is available in standard or customized azimuth patterns.
Also: FM: Coax switches, channel combiners, panel antennas, directional couplers, patch panels, bandpass filters, notch filters; TV: coax switches, "Switchless Combiners" (magic T's), waveguide switches, transmission line, panel antennas, multi-channel combiners, bandpass filters, notch filters, directional couplers, diplexers, switching combiners, antenna splitter/switchers.

Micron Audio Products Ltd. 8876
On Display: SQN location stereo and mono audio mixers and accessories for ENG/EFP, film and studio applications; the complete line of TRAM lavalier microphones and accessories will also be on display.

Microwave Filter Co. 8771
Intro: Low cost channel deletion filters for cable television; bandpass filters for UHF & MMDS; Diplexers for UHF & MMDS has low loss, smaller package, and is easy to install.
Also: Filters for interference suppression and signal processing; markets served include broadcast, most significantly MMDS and low power UHF, cable televi-

sion, TVRO, among other broadcast areas.

Microwave Radio Communications 7421

Intro: Millennium Triband Receiver portable from wave to receiver, up to three bands from 2 to 15 GHz; Millennium Triband Transmitter, up to three bands from 2 to 15 GHz; FLH-DAR, Digital-Analog Heterodyne Microwave System, from 2-15 GHz.
Also: Millenium PML, 2 box microwave radio from 1.7 to 15 GHz in 500 MHz bands FLR, remodulating transmitters and receivers from 2 to 15 GHz, Micro-T, 2 GHz miniature portable transmitter.

Mier Comunicaciones S.A. 2412
Intro: Systems for DAB and DVB; a low-power GSM repeater.

Also: TV transposers, transmitters; Yagi, curtain and array antennas; filters; power splitters; multiplexers.

Milestek Inc. S3542
Intro: Serial Digital Video Jackfield contains 24 Kings 7500-5 Jacks. Available in 1 and 2 rack spaces; Audio Patchbays; 2X24 longframe and 2X48 /bantam wired to 110 type termination panel; Heavy Duty Toolbox Attache features aluminum case with foam inserts and tool pallet.
Also: BNC Connectors; Tools; Cabling; Video Hum Stoppers; Audio/Video Connectors; Testers; Cases.

Modulation Sciences Inc. 11253
Intro: Model msi 320, Precision Video Demodulator provides advanced, accurate measurement and monitoring of a station's visual and aural signal; Model PCG-II, PRO Sidecar, PRO Channel Audio Generator. Eliminate cell phone charges by transmitting your IFB on the PRO channel. Crystal locked at 6.5 H (102.27 kHz). Stereo generator not required. Also Model PRO-II, PROceiver, Professional Channel Receiver for audio and data. Complete with antenna diversity input. Features CTCSS selective calling and main channel pushdown/talkover. Compatible with cue systems from Comrex, ClearCom, etc.
Also: TV Decoder; SAP Generator; Stereo Reference Decoder; SAP Generator; TV Modulation Monitor.

Moseley Associates Inc. 2602
Intro: Starlink 9000 digital STL system. Features include audio source encoder and decoder which allow users to select modes for uncompressed 16-bit linear with selectable sampling rates, and choice of ISO/MPEG or ADPCM source coding. Variable rate mux modules. Frequency agile RF transmitter and receiver modules.
Also: MRC 2 and MRC 1620 Remote Control products; MasterController & TaskMaster20 PC control software for Remote Control products; PC 6000 Studio Transmitter Links; the PCL 6000 Multichannel aural STL applications; and the DSP 6000 Digital Audio Transmission equipment for use with audio/video STL equipment.

Murphy Studio Furniture 1902

MUSICAM USA 3306
Intro: Road Runner is a new, low-cost portable mono codec/mixer for ISDN remote audio feeds; FieldFone/StudioFone features a system for high quality audio over a single ordinary phone line.
Also: CQ Prima Digital Audio Decoders featuring MUSICAM encoding for superior audio performance.

Myat Inc. 7002
Intro: E*UHF Power Combiner, which is a

high efficiency, fault tolerant, UHF power combiner for UHF/DTV applications, and is ideal for solid state transmitters.

Also: Complete line of rigid coaxial transmission lines, components and accessories, sized 7/8" 50 ohm through 12.00" series. Also combiners, power dividers, test quality adapters and reducers.



N Systems Inc. 7641
Intro: MC5 PC-based remote control system; Cam Pac3 Robotic remote camera system.

Nady Systems Inc. 6808
Intro: Nady 441/442 Gold Series VHF handheld, lavalier, and snap-on wireless microphone systems with single or diversity antennas, four user-selectable frequencies.

Nautel Maine Inc. 3606
Intro: XL12 State AM Broadcast Transmitter features 10 KW output power, 84% overall efficiency, on-air serviceability, 155% positive peak modulation at 10 KW. works for AM expanded band; FM10 Solid State FM Broadcast Transmitter 11KW Max output power, 65% overall efficiency, single or three phase power, on-air serviceability, power module to IPA convertability; FM20 solid state FM Broadcast transmitter, 22KW max output power, 65% overall efficiency, on-air serviceability, digital FM exciter with AES/EBU digital or analog input.
Also: ND Series AM Broadcast transmitters; FM series for FM Broadcast transmitters; NA series for medium wave broadcast transmitters.

Nemal Electronics Inc. 5061
Intro: Multicore Camera Cable, a 26-conductor shielded camera cable for use with Sony, Hitachi, Ikegami, and other products, features precision low-loss coaxial construction.
Also: Complete line of electronic cable, connectors and cable assemblies for broadcast, RF and data applications.

Network Music Inc. 6537, M6228
On Display: Production music libraries; production

elements library; CD-ROM presentation audio.

Neumann 6760
Intro: AK20, microphone capsule for KM100 miniature microphone system, achieves directional characteristic Figure-8 with a single diaphragm. Excellent low frequency response.
Also: Jeweler's Box for one or two KM184 or KM84 microphones; M149 Tube Microphone.

Neutrik USA Inc. 1321
Intro: "Z" Series of cable connectors, three contacted, solder cups come pre-tinned, ground made by bending ground wire back over shield; PowerCon AC power connectors, cable ends and receptacles for power in and power out, color coded and keyed differently to prevent mating accidents.
Also: A/B Series; Speak On; MiniCon; Neutricon; Narocon; XLR Receptacles; XLR cable ends; jacks and plugs.
Contact: Keith R. Evans
 195 Lehigh Ave.
 Lakewood, NJ 08701
 telephone: (908) 901-9488
 fax: (908) 901-9608
 e-mail: neutrikusa@aol.com

Nigel B. Furniture S6028

Non-Stop Music Library S3119

NPR Satellite Services 3914

NSN Network Services 4003

Nucomm Inc. 8654
Intro: TP - truck package, allows single or dual operation, video presence detector for remote standby operation, two-field turnable audio subcarriers, universal power supply and line or mic operation; FT/FR6 - Digalog Long Haul Radio is digital ready and is capable of STL, TSL, or ICR configuration that can handle any complex digital video signal and can handle analog video; CR4 - Central Receiver has the ability to block out "PCS" signals, two field programmable audio subcarriers with special filters to block out unwanted "PCS" signals.
Also: The MPT1, Miniature Transmitter is PC programmable and available in 2 and

See page 62 ▶

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► continued from page 61

7 GHz, with 16 channel selection switch and HI-LOW power switch for 1 W/300 mW RF output and weighs 280 g; HTG4 offered in NTSC or PAL models generate EBU bars, UKITS Composites, Multiburst, Ramp, Black Burst and 1 kHz audio test tone, 16 character ID, weighs 225 g.



OMB America 4024

Omnimusic 8773
On Display: Over 2000 cuts of music and sound effects on over 100 CDs.

Omnitronix Inc. 3426
Intro: OMNI-100K AM broadcast transmitter, 100 percent solid state, digital inner workings, extensive antenna & power mains transient protection at all levels, completely modular design.5
Also: Full line of digital, solid-state AM transmitters (medium wave), 100 kW, 50 kW, 10 kW, 5 W, 1 W, 500 W; tropical band shortwave in 1 W - 10 kW models.

OneMusic S1331
Intro: With the launch of OneMusic, offerings include New Production Music, an initial library of 200 high-quality albums featuring current tracks from established recording artists within a deep variety of music genres; introduction of LiquidTrax, which will provide more flexibility and creativity to the client in the DAW environment; New Services, including representation of independent record labels and turnkey film soundtrack development; New Distribution with development of hardware and software for distributing music for post production over the Internet.

Orban 2402
Intro: Optimod 9200 AM digital processor, the first fully-digital processor designed for the critical demands of AM; AirTime on-air digital delivery system, suited to demanding, traffic-intensive radio or TV applications, incorporates significant refinements to the DDS system; Audicy, new digital audio workstation for audio-only and audio-for-video applications.
Also: Optimod-TV 8282 Digital; Optimod-TV 8182; Optimod-FM 8200 digital; Optimod-FM 2200 Digital.

Otari Corp. 10580
Intro: Elite Film Console, digitally controlled analog console allows for direct assignment of mix or channel paths output to any record bus, mix and channel path are separate and can be assigned independently; Radar 48 Digital Multitrack Recorder, 48-track random access digital audio recorder for audio post production application; DTR-8S DAT Recorder, monitor output signal without DAT tape in unit, +4dBu (-10dBV switchable) active balanced analog I/O with XLR-type connectors, both AES/EBU and S/PDIF digital I/O.



Orban 9200 Optimod-AM Digital Processor

Also: Status console; Concept console; Lightwinder; UFC-24 digital format converter.

Oxtel Ltd. 9773
Intro: Oxtel will demonstrate its modular approach to automated digital presentation mixing. In Oxtel's presentation systems, vision mixing and downstream keying are provided by EasyKey units, which feature multiple automation and remote control interfaces.



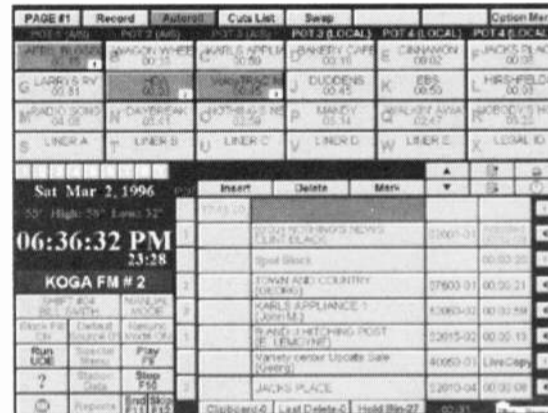
Pacific Research & Engineering (PR&E) 2618
Intro: A new digital audio broadcasting console with built-in signal processing; AirWave On-Air Console, with all-electronic audio switching, automatic telephone mix system; QuikBilt, ready-to-assemble broadcast studio furniture.
Also: STX Stereo Television Mixer; X-Class Console Line; RMX on-air Console; Custom studio furniture.

PanAmSat 7980

Panasonic Broadcast & Television Systems Co. 10701
Intro: DVCPRO Non-linear Editing

Workstation, editing system with built-in DVCPRO VTR, disk transfers at 4Xs normal speed; AJ-D800 2/3-inch DVCPRO Camcorder for EFP work with three 2/3-inch IT CCDs, 63 minutes of recording, 10-bit DSP, minimum illumination of 2 lux, weighing under 13 lbs.; Postbox Version 3.5 upgrade of non-linear A/V workstation with more than 40 functional improvements.
Also: DVCPRO, D-5 and D-3 products; digital cameras, monitors, and station automation systems.

Penny & Giles Inc. 3424
Intro: PP10 Audio Multiprocessor System, digital audio system carries out multiple, independent and simultaneous processing of up to 16 separate signals; DC16 Digital Audio Workstation Controller, uses 16 endless-belt controllers with integral LED positional displays, enables full fader automation with many DAW systems.
Also: Auto faders; potentiometers; video controllers (analog and digital); multi-axis joysticks.



Prophet Systems

Penta Laboratories 1720
On Display: Broadcast power tubes; transmitting tubes.

Phasetek Inc. 2826
Pioneer New Media Technologies S2738

Intro: DiscBank features an intuitive graphical user interface and enhanced picture quality; DVD authoring product; Digital FastFile features digital hard disk recording technology; slow motion playback; clipstores.

Potomac Instruments Inc. 2017
On Display: 1900 Series directional array antenna monitor; AA-51A audio analyzer; AG-51 audio generator; SD-31/RX-31 frequency synthesizer and coherent detector; FIM-41 medium wavefield strength meters; FIM-71 VHF field strength meter; FIM-72 UHF field strength meter; SMR-11 synthesized AM monitor receiver; QA-100 program audio analyzer; 1750-TLM tower light monitor system; 1500-PC programmable transmitter controller with DOS-compatible software.

Pristine Systems S1935
Intro: Pristine Rapid Fire, a digital studio system.
Also: Pristine MMCS; Music Plus; Time Warp; Audio Commander; Voicetraxx packages.

Production Garden Library 8862
Intro: Broadcast production library, emphasis on live instruments and new musical styles; Air Assault II, sequel volume with new digital effects and production elements; River of Guitars, production music CD featuring breezy, bluesy acoustic guitar and light percussion.
Also: Broadcast Series 100 production music library; AV/Video Series 200 production music library; Manchester Music Library.

Professional Sound Corp. 1517
Intro: M8 Portable Audio Mixer features eight inputs, four main outputs, two aux outputs, "film" functions, and studio quality; Reader Slate is a timecode reader slate with high intensity, sunlight readable displays, Comtex docking port.
Also: Audio mixers; boom poles; microphones; shock mounts; phone interfaces; RF amplifiers; press bridges; RF antennas; microphone power supplies; equipment carts; bell and light systems; distribution amps.

Professional Sound Services S6033

Pro Lease Eqmt. Finance M7576

Promusic 53335/53336
On Display: Promusic is a production music and sound effects library with over 1400 CD's of music, offering the most diverse musical styles available.

Prophet Systems Inc. 4106
Intro: Multi-Location Audio Transfer CFS Module, automatically transfers spots,

songs and voice tracks from one location to another; News & Copy and Audio editing module, create news stories and cuts for read-back in the log.

Also: Audio Wizard CFS for Windows; Audio Wizard XPS for Windows.

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telephone: (800) 658-4403
fax: (308) 284-4181
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sales@prophetsys.com
Web site:
www.prophetsys.com

Pulzco Engineering Inc. S6129

Intro: IPC 3302 Intelligent Power Controller, a microprocessor-based, RS-232/485, remote power on/off, stack up to 9 IPCs (control 72 devices), Daisy-chain 36 IPCs up to 4,000-foot control 288 devices, individual addresses; TPC 125 - A/MTD, Time Delay Power up Controller, a remote power on/off, sequenced power up form "C" outputs and AC outlets; TPC 4000, Three Phase AC Power Controller, Profile 30, 30/A phase sequenced time delay, local/remote operation.
Also: LA 1653, satellite lightning addresser; TPC 115 -A/MTD; thin-line AC power controller; RCP 2242; remote power control panel.



QEI Corp. 1709

Intro: Quantum 1000E with back mountable 1KW FM transmitter utilizing Quantum 600 Watt modules.
Also: Solid-State and single tube FM transmitters from 10 Watts to 30 KW; Solid-State FM amplifiers from 5 Watts to 10KW; Exciters from 2 to 600 Watts; Cat-Link T1 Telco based digital STL/TSL; Quick-Link T1 spread spectrum digital system for RPU and STL applications; 710A digital stereo generator; 691 FM modulation monitor/test set; scientific and special use RF amplifiers.

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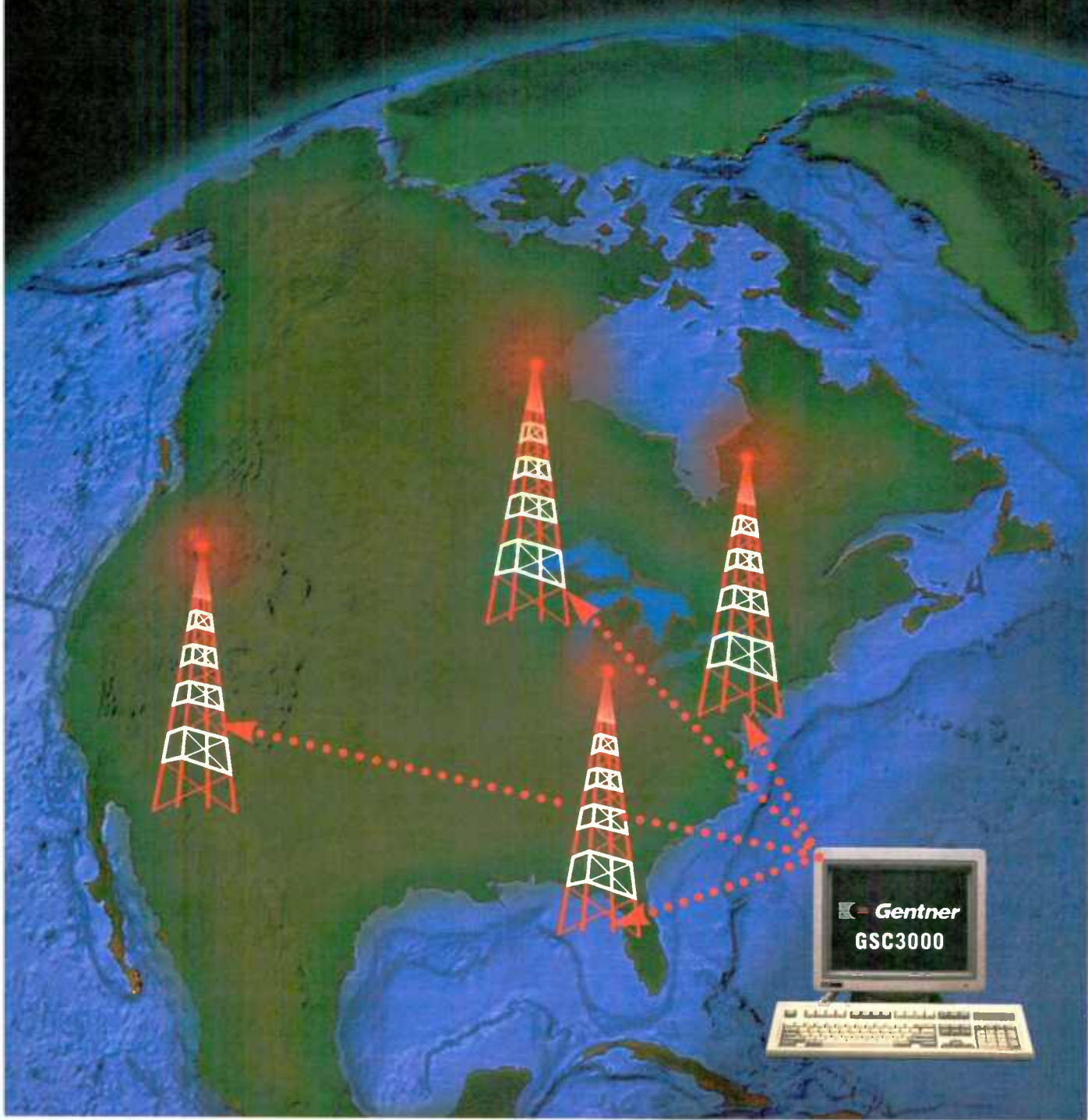
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The GSC3000 lets you create macros allowing the system to do complex control tasks, like automatically switching from the main to the standby transmitter. Virtually any event can trigger a macro allowing automation of your system.

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Operating in Windows® 95, Windows® NT or Windows® 3.1 the GSC3000 software provides point-and-click convenience while you monitor, program, and operate your site or sites. Plus, you can access the system anywhere you have a PC.

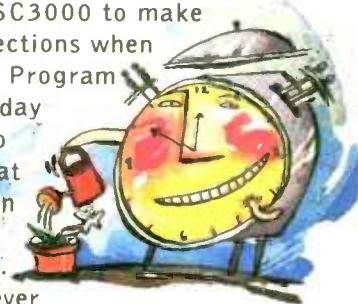
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► continued from page 62

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R-Columbia Products Co. Inc. 6745
Intro: Palm Talker is a hands-free, voiceless, wireless intercom control; Expand-A-Com features the world-class (wired) intercom system expandable from 4 to 400 stations; Model RC-660 features boom mic intercom headphone.
Also: Model TR-50 features the two-way wireless intercom headphones.

Radio Computing Services (RCS) 1216
Intro: Master Control-NT does "Real Feel" Voice Tracking, perfect integration with Selector, "Living Log" for last-second log changes, PD-controlled in-studio web browser, runs under Windows NT; RCS Digital Console has one wire that connects all studios, it can configure con-

soles differently for each operator or program, has 100 percent custom design to your specs control all consoles from any console.

Sounder has hot key audio for instant playback or sequential play of jingles, promos, sfs, songs; TalkBack has talk show management of calls, complete caller history, timers for on-hold and on-air, runs under Windows NT.
Also: Selector; Master Control (non-NT); Linker; Songtrack; Music Base; RCS Traffic; Newslink; Prosonix; Tracker; Pro-rate; Aircheck.

Radio Nation 2926
Intro: Radio Nation News-personal, completely self-contained news preparation for correspondents working from small office/home. Features ISDN links to main station.
Also: Radio Nation is a totally integrated

suite of software to run all sizes of radio station. It includes digital production, traffic, scheduling, live assistance, billing and receivables, news and sales management information systems.

Radio World 2400
On Display: Radio World, Radio World International, Tuned In, Pro Audio Review, Broadcast & Production.

Radiomation 2926
On Display: Radiomation is an integrated suite of software to run all sizes of radio stations, includes digital production, traffic, scheduling, live assist, billing and receivables, news and sales management.

RDL (Radio Design Labs) 3724/3725
Intro: ST-LMX3 mic/line mixer; ST-PD5 power supply distribution module; STR-19A and STR-19B racking systems; EMC products including the TS-1D transient suppressor with companion GB6 mounting/ground bar.

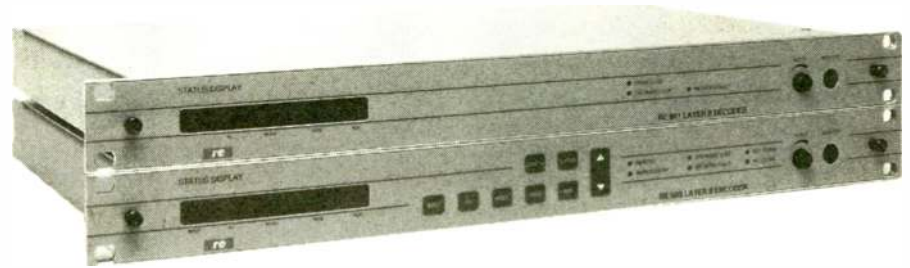
RE America Inc. S4068
Intro: RE4220 MPEG-2 video codec interfaces to PAL, NTSC composite and 4:2:2 digital component video encodes according to 4:2:2 P@ML and MP@ML, multiple associated audio and data channels; RE4500 video codec with SMPTE remote control, 4:2:2 digital component video on

codecs and the linear PCM RE8930 audio/data/voice codec.

Rees Associates Inc. 10458

Register Data Systems 1706
Intro: The Replicator, network store and forward recorder, capable of recording two audio programs while playing back a third, records and reproduces control closures with program; Traffic 31, WINDOWS 95/NT-based traffic and billing software package for radio or television.
Also: Phantom, digital audio automation system; Traffic Master II; System Six traffic and billing systems.

RF Technology/Continental Microwave 11910
Intro: UCL Series fully flexible one/two box analog and digital portable microwave system, direct tuning in 100 kHz steps across any standard frequency plan from 1.2 GHz to 16 GHz, available for truck, tripod or permanent installations; ACL series analog/digital fixed microwave system available from 1.2 to 16 GHz; SNG-T series single, C,X, Ku or Ka flyaway systems are available in addition to dual and tri-band packages. Antenna sizes include 1, 1.5, 2.2 m.
Also: RF-202D, Rf702D, RF-1302D transmitters; RF200D, RF700D,



RE 660/661 MPEG Layer II Audio Codecs

DS-3 SMPTE machine control allows for distance independent editing across the network.

Also: Broadcast and post-production video codecs for terrestrial and satellite applications; RE3400/4500 ETSI/ANSI component video codecs and the RE8860/8870 composite video codec; RE660 Series MPEG layer II audio

RF1300D receivers; UPL-2000, UPL7000, UPL-13000 transmitters, HCR-200D central receiver, RF-RCS remote control system.

Richardson Electronics 7107

Rip-Tie Co., The S2446
Intro: Rip-Tie Lite Cable organizers for

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lighter duty applications, come in all colors and many different sizes. Cablewrap screwmount and fiber optic cables for category V and fiberoptic cables.
Also: RipTie CableWrap; CableCatch; CableHanger and CinchStrap.

River City Sound Productions 5858

Intro: Buy-Out Production Music Library, in the Broadcast Series each CD features a variety of music in full song lengths followed by :60, :30, :15 & :10 edits, covering categories sports, mellow, corp/ind., country, rock, hi-tech, atmospheric, urban and misc.; the Specialty Series is dedicated to weddings, nature, country, corp/ind, mellow, Christmas, sports, classical I (orchestral), classical II (solos and duets), etc.

Roland Corp. U.S. 3612

Intro: VS-880-S1 System Expansion, with dynamic automated mixing functions, 10 new effects algorithms and enhanced disk space; AF-70 Anti-Feedback with professional feedback detection and elimination, dictated front panel knobs and switches; DR-10/DR-20 Dynamic Microphones with a host of professional features and specifications.

Also: VS-880 Digital Studio Workstation; VT-1 Voice Recorder; AR-100 Announcement Recorder; AR-100 Noise/Hum Eliminator; DM 800 Multi-Track Disk Recorder.



S.W.R. Inc. 5609

On Display: Low to high power FM antennas; FM panel antennas; directional FM antennas; low to high power TV antennas (1 kW to 120 kW); rigid transmission line components.

SADIE Inc. 1001

Intro: SADIE3 is the new software from Studio Audio and Video Ltd. It runs on SADIE and Octavia hardware. Features: 8, 16, 18, 20, and 24 bit resolution capability, background recording and archiving, unlimited virtual tracks, clip-based automation of level, pan, EQ, and dynamics, real-time EQ and dynamics in mixer; Octavia is a modular digital audio workstation with 8 digital and analog inputs and outputs. AT&T DSP3210 processors which generate over 133 Mflops of processing power.

Octavia can replay at least 24 simultaneous streams of audio with full dynamic real-time processing. Onboard 20 bit A-D and D-A converters and AES/EBU inputs and outputs are standard; SAS-CIA is a real time network for transferring multiple channels of digital audio between SADIE and Octavia workstations. Using ATM (Asynchronous Transfer Mode) protocol for the network. SAS-CIA's 155 Mbits/sec link provides sufficient bandwidth for continuous replay of over 100 simultaneous channels; DE-NOISE provides up to 20 dB real-time broadband noise reduction with no additional hardware requirements.

Contact: Jeff Boggs
 1808 West End Ave., Ste. 1119
 Nashville, TN 37203
 telephone: (615) 327-1140
 fax: (615) 327-1699
 e-mail: jboggs@sadieus.com
 Web site: www.sadieus.com

Sandar Electronics AS 11864

SCA Data Systems Inc. 1909

On Display: NT96 Data System (synchronous & asynchronous) generators & retrievers; paging generators P6-573 and P657-4; RD-57, RDS Generator; MBS/RDS data receivers.

Scala Inc. 14949

Intro: Scala InfoChannel IC200, multimedia authoring/playback/control software for automated cable ad channels, corporate communication and retail TV display monitors.
Also: Scala Multimedia MM200; Scala Studio Service; Scala MMOS - Embedded System

Schoeps/Posthorn Recordings 4842

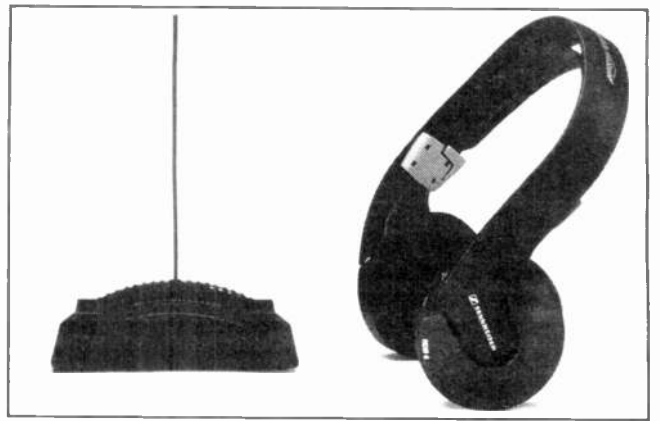
Scientific-Atlanta 6713

Intro: PowerVu SNG Capabilities encoder was designed for the single channel user in mobile and fixed location applications; PowerVu MetroMux, a software upgrade package for the Command Centre, enables a multiplexer to operate as a remultiplexer and combines signals encoded at different locations without quality degradation associated with decompressing and recompressing

source material; PowerVu Data Applications include File Transfer, Streaming Applications and Internet Applications.

Also: PowerVu MPEG 2/DVB-compliant system for direct-to-home networks, broadcasting, and business television with a system that includes: digital video encoder, multiplexer, video modulator, commercial satellite receiver, head-end satellite receiver and the PowerVu Command Centre.

PowerVu Command Centre 3000 allows the network operator control of



Sennheiser RS6 Wireless Headphones

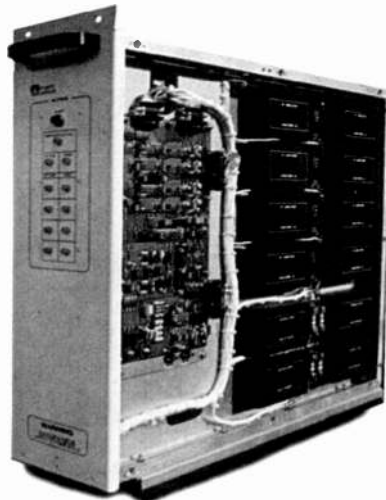
the uplink portion of the satellite broadcast system while the Program Providers

See page 66 ▶

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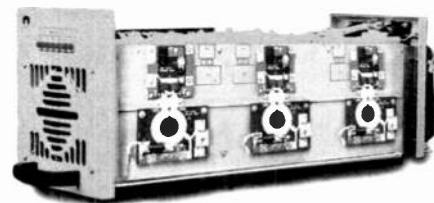
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NAUTEL's Website: www.nautel.com

► continued from page 65

are responsible for the downlink portion; earth stations with antennas from 0.5 to 18 meters; RF converters; analog exciters; and receivers.

Scott Studios Corp. 2007

Sennheiser 6760

Intro: SKM3072-U, UHF handheld transmitter, 32 switchable frequencies, 50 mW of RF output power, frequency response of 80-20,000 Hz, frequency range of 450-960 MHz; 3050 Series In-Ear Monitoring System, stereo UHF system, includes SR3054-U single channel or SR3056-U dual channel transmitters and EK3052-U beltpack; RS6, 900 MHz, RF Wireless stereo HD system offering a transmission range of 250 feet in any direction, features 3 switchable frequencies.

Also: MD425 supercardioid dynamic microphone; EM3031-U single-channel UHF true diversity receiver; EM3032-U two-channel UHF true diversity receiver.

Shively Labs 3301

Intro: High Power UHF antenna for NTSC and HDTV, constructed of aircraft grade aluminum and copper with UV stabilized polyethylene radome, power handling capability up to 150 kW; Model 7070 Compressor-Dehydrator with thermal overload protection, back pressure regulator, humidity indicator, pressure switch, optional wall-mount bracelets. B-line coaxial transmission line, with a patent-pending connector system that virtually eliminates catastrophic arcing and bum-up.

Also: FM, UHF and MMDS antennas; FM and UHF translators; branched and balanced combiners; patch panels; filters; compressor-dehydrators; transmission line and related RF equipment.

Shure Brothers 5613

Sierra Automated Systems & Eng. Corp. 4027

Intro: SAS 16000 Series Audio Routing Switcher, integrated unit with 32 input x 32 output capability, control system fully compatible with all SAS control panels; GPI 1600 Automation Controller, compact automation system interfaces PC driven software to SAS switching system, provides 16 relays and 16 optics for external interface; AX-8M Mix-Minus Controller, adds preset "matrix snapshot" capability to MMS 32000 Mix-Minus system, snapshots instantly reset all mixes to change from show to show.

Also: SAS 32000 Audio Switching and Mixing System; SAS 64000 Auto Routing Switcher; 32000 Matrix Intercom.

Sira Sistemi Radio 9053

SMARTS Broadcast Systems 4014

Intro: The Right Touch, Digital Program Director, a Windows '95-compatible traffic & billing system and the Spider, software that uses the World Wide Web to weave together business, operational and audio data.

Solid State Logic 2612

Intro: AYSIS console adapts to a range of broadcast demands from on-air applications through post production and music mixing, employs Axiom's Channel Banking, enabling any bay to control a second bank of channels with a single button push; "Sweet Spot" access swaps control of peripheral bays to a central location so that the operator can retain an optimum listening position; The G+ Special Edition range includes, as standard, custom options specified by leading SSL users, together with specific new features designed to further enhance the effectiveness of the console in today's demanding studio environments; ALTIMIX is an advance in post production; SSL's DiskTrack technology is used to store both video and audio in a shared hardware environment, with dynamic links to console automation data, complete flexibility is achieved at any stage of the production schedule in accommodating editorial changes.

Also: SL 9000 J SERIES exhibits circuit designs, oxygen-free cable, and DC coupling, no electrolytic capacitors are used; AXIOM utilizes powerful proprietary digital technology, and can be specified to do broadcast production, sound-to-picture post production or music recording and mixing.

Solutions Custom Furnishings Inc. S5658

Intro: Duo computer furniture for a corner workstation, easy to assemble, integrates with other products.

Also: Crescent, Arc and custom consoles.

Sonic Foundry S2853

Intro: CD Architect can write Red Book audio to a recordable CD and read Red Book audio directly from CDs, extensive support for PQ editing, including track times, sub-indices, ISRC codes, and more; Acoustics Modeler, which imparts the acoustics of real environments and recording devices onto sound files; Sound Forge XP-Express Audio for Multimedia and the Internet, a PC and Windows-compatible sound card that puts a virtual sound studio at your fingertips.

Also: Sound Forge 4.0 allows producers, musicians, and multimedia developers to create professional quality audio with numerous effects; Noise Reduction Plug-In for Sound Forge 4.0 analyzes and reduces background noise; Batch Converter Plug-In converts and processes thousands of files automatically using batch scripts; Spectrum Analysis Plug-In performs precise FFT analysis and displays the data in two graphical formats.

Sonic Science M8332

Intro: Sonic Search Version 2.5, a SFX & Music retrieval system that searches a constantly updated SFX/Music database, locates/plays from CD autochangers, HFS drives, and DATs, uploads/spots to digital audio workstations.

Also: Sonic Boom Digital SFX: The Works (10 CDs), Dynamic Range (2 CDs), Foley Fontsteps (1 CD); Sonic Source Music Library (10 CDs, Audio), (2 CDs, .AIFF, .WAV).

Sonic Solutions S4132

Intro: Sonic On-Air applications and workstations for radio broadcast, featuring instantaneous and simultaneous editing of a single soundfile by up to 20 editors during recording.

Sonifex S1933

Intro: Sentinel+Index, a single data DAT

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drive and a single 2GB hard disk; Courier, portable recorder, records to a PCMCIA card, graphical scrub-wheel editing, transfer audio via mobile telephone, modem and ISDN; Station Master, combines all the "black boxes" for audio distribution, switching, talkback, monitoring.

Also: HDX2000 automation system for radio and TV for music, advertisements and jingles; HY-02 telephone hybrid.

Sony Electronics Inc. - Business & Professional Products Group 5929

Intro: 800 series of wireless UHF microphone components including the WRT-805A body pack transmitter, the WRT-800A hand-held microphone, WRR-801A and WRR-800A diversity tuners, and WRU-801A tuner module.

Also: PCM-7040 Digital Audio Recorder, MDS-B5 stereo MiniDisk Cart Recorder, MDM-X4 MiniDisk Multitrack Recorder.

Soundelux/Group One Ltd. 1514

Intro: U195, a large diaphragm, FET electronics, cardioid condenser mic designed for music, film, and broadcast applications, with two modes of operation: "fat" and "norm."

Also: U95 classic tube mic.

Soundscape Digital Technology M7666

Intro: SSAC-1 accelerator card, allows for 4 additional channels, real-time processing, 128-channel, fully-configurable digital mixing; SS810-1, 8 I/O peripheral (20-bit crystal converters) with ADAT ODI, TDIF, and superclock/workclock; SSSHDR1-PLUS, the basic model with SSAC-1 pre-installed.

Also: SSSHDR1; SSSHDRIFS; PDAE 1.9SSC.

Spectral Inc. 3318

Intro: AudioVAULT Transfer Agent, software designed by Spectral to handle network digital audio transfer to the Broadcast Electronics AudioVAULT on-air delivery system; DADpro Transfer Agent, software designed by Spectral to handle network digital audio transfer to the ENCO DADpro on-air digital delivery system.

Also: StudioTracks XP, post-production software; Express, radio broadcasting editing software; MediaMaker CD, CD-R burning software.

SPL Sound Performance Lab 5505

Intro: De-esser scans the frequencies and hones in on S-sound and eliminates them with no audible side effects; Tube Vitalizer features LC and tube technology for mastering and high-end recording applications; Charisma an eight-channel tube processor designed to create tape saturation effects for digital recording media.

Also: Classic Vitalizer; Stereo Vitalizer; EQ-Magix; Optimizer; ProMike; MikeMan; Spectralizer; Loudness Maximizer.

Sprague Magnetics Inc. 1822

Intro: DA88 head wheel reconditioning, tape head reconditioning, reel-to-reel replacement parts, alignment tapes.

Stainless Inc. 6811-13

On Display: Guyed and self-supporting towers up to 2,000 feet with multiple antenna systems.

Studer 6948

Studio Technologies Inc. 2104

Intro: Model 770 audio mixer/IFB controller.

Also: Model 750 audio mixer; IFB plus series; Studiocomm series; Studio Tools series; AN-2 and Generation II; mic-pre eminance.

Superior Broadcast Products 2527

Intro: Television and FM transmitters, antennas

Contact: Jimmie Joynt
17194 Preston Rd., Ste. 123-297
Dallas 75284
telephone: (972) 473-2577
fax: (972) 473-2578

Superior Electric 1626

Superscope Technologies/Marantz 2102

Intro: CDR615 compact disc recorder, a stand alone operation/built-in sample rate converter/automatic track incrementing and indexing from CD, DAT, and MD/digital fade-in/fade-out/ digital audio relay; DMD350 combination CD player/cassette features independent operation/pitch controls, digital output, mic output, one track or multiple track programming, automatic level control; PMD370 a five disc changer.

Also: Portable analog cassette decks; a series of rack mountable CD players and cassette decks, multitrack recording studios; compact disc recorders and portable audio and video presentation equipment.

Svetlana Electron Devices 1424

Intro: 3CX10, 3CX20, 00A7 power triode for VHF-TV; 3CX5000A7 power triode for FM transmitters.

Also: Complete line of vacuum tubes for broadcast, audio, amateur radio and industrial applications.

Switchcraft Inc. 2924

Symetrix 1817

Intro: 628 Digital Voice Processor provides broadcasters with a preamplifier, a de-esser, downward expander, compressor and three-band parametric EQ. offers analog and digital outputs; 532E Graphic Equalizer provides 31 bands of control plus high-pass and low-pass filters.

Also: 420 20 W power amp, 422 AGC/leveler; 425 stereo compressor/limiter, 528E voice processor; 551E five-band parametric EQ; 610 broadcast delay; SX-202 microphone preamp, SX-204 headphone amp.

Contact: Kim Cahail
14926 35th Ave. West
Lynwood, WA 98037
telephone: (206) 787-3222
fax: (206) 787-3211
e-mail: wlsymetrix@aol.com
Web site: symetrixaudio.com

Systems Wireless Ltd. 11259

Intro: Synthesized UHF Studio Wireless Mic System, a UHF frequency agile wireless microphone system with 256 frequencies available; Synthesized UHF Camera-mounted Wireless Mic System, a light-weight camera-mounted wireless system; Wireless Video Triversity system, operates in the 2.4 GHz band on 4 user-selectable frequencies; UHF Wireless Intercom System permits communication over a 2,000-foot range and interfaces easily into most cables and intercoms; Synthesized UHF Wireless IFB; Matrix Plus III digital intercom system.

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KTAR-AM

► continued from page 67

Also: A complete line of broadcast-quality wireless microphones, wireless IFB and wireless headsets for field and studio that operate in the VHF and/or less congested UHF band. Clear-Com cabled intercom system will also be on display.

•T•

TAI Audio Inc. S6033

Talk America Radio Networks S2053
Intro: WorldWeb News Network, world and national headlines on the hour and half hour, 24 hours/7 days, sports on the hour 24/7, customized weather on the hour and half hour, on satellites C5, C6, and Spacenet 3.

Also: Talk America Radio Networks - live talk programming 24 hours a day 7 days a week, available on C5, C6, and Spacenet 3.

Tascam 6952

Tektronix Inc. 9914
Intro: JND Picture Quality Analysis Demonstration, analyze imprints in compressed video; Profile PDR200, distributed storage and faster than real-time video transfer over a high-speed fibre channel network; M-2100 Digital Master Control System, core of an integrated system; WFM601A/WFM601E Serial Component monitors; MPEG real-time analysis technology demonstration.
Also: Line of digital audio monitors, hand-held monitor.

Telex Communications Inc. 8510

Intro: Radiocom UHF Wireless Intercom, the BTR-600 UHF full duplex wireless intercom provides the user with two independent audio channels, and frequency agility in case of interference; Digital to Analog Tape Duplication/Editing System that features four different types of speed selections (1X, 2X, 8X, 16X), editing capabilities; LCP-1000 Series Level Control Panels for ADAM Intercom Systems, designed for the RTS ADAM and ADAM CS Advanced Digital Audio Matrix Intercom systems.
Also: CamLink systems bring wireless freedom to video and film production; Audiocom US-2000A User Station; ADAM-EDIT Windows Based Intercom System; Windows NT/95 Virtual Intercom Keypanel; ProStar UHF and VHF Wireless Microphone Systems; HT-Series Microphones with Audix Heads; TD Series Vocal Microphones and Cobalt Series Instrument Microphones.

Telos Systems 3006, I5250

Intro: Booth 3006: The Zephyr range of ISDN audio transceivers now includes ZephyrExpress, combining a full featured codec, an ISDN terminal adapter, and an audio mixing/monitoring system in a road-rugged chassis. Booth I5250: Audioactive is Telos Systems' professional, Internet audio-streaming technology. The Audioactive suite includes a hardware encoder, software encoder, and freeware decoder. Fully compatible with Macromedia's Shockwave audio standard.

Also: Booth 3006: Telos Systems' broadcast-to-telephone interface products include the 100 Delta digital hybrid with dynamic digital equalization; the Link, for connecting phone lines to intercoms; the ONE plus ONE dual hybrid; and talk show systems, including the economical ONE-x-Six.

TFT Inc. 3003

Intro: EAS911 PC software encodes EAS messages via modem, off-site setup.
Also: 850 BTSC TV aural modulation monitor; 844A FM monitor; 923 AM monitor; digital & analog STL products.

Thomcast 7414

Intro: Optimum line of VHF transmitters, high efficiency, wideband, hot swappable, user-friendly; Crystal line of integrated DAB transmitters, Skywave 2000 short-wave transmitter; Series 7 HP high power, long, medium wave modular transmitters from 250-2000 W.

Also: Digital advantage TV family of transmitters; Compact IOX transmitters; MMDS analog and digital transmitters; line of shortwave transmitters.

Thomson Tubes Electroniques 5751

Intro: IOT TH 730 20 kW in common amplification, air-cooled design, high gain.
Also: TH 680 diacode, TH 760 IOT, TH 610 diacode.

Tiesseci 3918

TimeLine Vista, Inc. 2027

Intro: MMR-8 (Modular Multitrack Recorder) an 8 track disk player/recorder designed to replace magnetic film dubbers and multitrack tape machines used in film and video post production.
Also: Lynx-2 (Synchronization System); Micro Lynx (Time Code Synchronizer)

TM Century 3001

Intro: Imagio an audio imaging library; Masterplan (Spanish) a promotions and sales library; L-Disc hit disc latino (pop, dance and rock) rhythms appealing to the

12 - 39 Latin segment.

Also: Gold disc; jingles; hit disc; TMCI Comedy Network; production libraries.

Torpey Controls & Eng. Ltd. 11238

TRF Production Music Libraries 6461

TWR Telecom/Lighting Inc. 3904

Intro: Dual Medium Intensity Strobe System features two separate flashtubes for a true failsafe, easy access to change out flashtubes, no mechanical parts housed in strobe beacon.
Also: FAA-approved and ETL-certified aviation obstruction lighting, edium intensity strobes, red incandescent light systems, dual light systems.

•V•

V-Soft Communications 4840

Intro: INTERDLC v 2.0 features FM and TV signal coverage maps, digital graphic overlays, automatic multiple market ownership (duopoly) analysis, interference studios; TD Series- airports, census, duopolies and towers (FCC and FAA) databases with full integration to INTERDLG.

Also: INTERDLG, Searchem, FMCONT, CONTOUR, SEARCHTV, PLOTPATH.

Valentino Production Music Library 6411

Intro: The Music series will be at Volume 95 and the Sound Effects series at Volume 94; both libraries will be downloadable via bit stream technology over the Internet.

Videoquip Research Ltd. 1502

Intro: Phase3 RS-41DA and DDA104, AES/ EBU 4x1 router and 1x4 distribution amp features transformer coupled inputs and outputs, PLL receiver, relocked data stream at outputs, no A.C. adapters; PHASE3 RS-41S and RS819, 4x1 and 8x1 SVAS video routing switchers 1/2 rack size, standard SVAS connectors, remote controllable, vertical interval switching; PHASE3 CDA-104, 1x4 composite FM distribution amplifier, BNC connectors, internal power supply, 1/2 rack size.

Also: DAVE-2000 and DNEWS-News editing, automation, and capture.

Vyvx Inc. S4112

Intro: Component video transmission services; compressed dedicated transmission service; video and multimedia file transfer-based service.

Also: Fiber-optics; satellite and teleport video transmission services.

•W•

Ward-Beck Systems Ltd. 11025

Intro: ABB-1, the Audio Bit Buddy is a portable digital audio monitor; D2000 Digital Audio Distribution Amplifier Series features relocking, reframing, sync generator distribution amplifiers, BNC or screw terminal frames; Renaissance for television audio consoles, mix-minus output per channel, up to eight stereo submasters, two stereo masters available in 24, 32, 40, 48 input mainframes standard.

Also: Renaissance radio consoles; D8212 analog audio distribution amplifier system; M405P/M445 extended range VU meters; PODS low cost audio problem solvers.

Wegener Communications 11940

Intro: DVR395 digital video receiver offering MPEG-2; 1.5-15MBps, broadcast quality, low cost; MCPC Digital Audio with MPEG Layer II compression.

Also: Digital SNG transmitter; Digital Audio SCPC

Arrakis Studio Furniture systems are #1 with over 1,000 sold !

The Master Control Studio, shown right, is one of seven Arrakis studios in Sony's Manhattan network origination center for SW Networks.



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1995 Arrakis Systems inc. 2619 Midpoint Drive, Fort Collins, CO. 80525

Circle (76) On Reader Service Card

World Radio History

Wheatstone Corp. 1212
Intro: SP-8EX console aimed at local television stations; new audio master control console aimed specifically at headquarter television broadcast facilities; R-5 on-air console for radio applications.
Also: A-300, A-6000 and D-500 on air consoles; SP-4 eight-track production mixer; Audioarts Engineering's MR-40 production mixer, R-16 and R-60 on-air boards; rackmount signal processing.

Whirlwind 5747
Intro: Lineman portable multi-function audio system tester for ENG and remote broadcast with built-in mic, speaker and tone generator, it tests for phantom power intercom line voltage; MD-1 portable battery powered mic preamp with headphone monitor amp, separate mic level and headphone level adjustments, headphone amp direct in jack. The mic preamp has switchable 18V phantom.
Also: Video and audio connectors and cables; U.S. audio mixers; amps; splitters; cable reels; audio adapters; audio distribution systems for news feeds.

Who Did THaT MUSiC Library?
/Groove Addicts 1919, 1920, 1921
Intro: Acoustic library produced by commercial producers and musicians which includes 470-plus individual titles and 25 individual CDs. 6-8 updates a year; Radio ID jingles for syndication, custom, BBC Radio 1 (Alternative), WPCH Atlanta (AC), Capitol FM/London (CHR), WJZW Washington (Jazz), including "Smooth Moves" a new NAC package and new Hot Talk package; MindBenders, sweepers and music EFX as well as sound effects for radio, TV and multimedia production.
Also: Jingle ID packages: WBBM Chicago (CHR/rhythmic), NJoy Radio Hamburg (CHR rhythmic), WMZQ Washington (Country) and Oldies, Hot AC and various news packages.

Will-Burt Company 11800
Intro: Low Profile Pan and Tilt Positioner for ENG Masts—unit sits 2 1/2 above the top of mast. These heavy-duty units are also available for heavy payloads; also Powerline/Object Detection Device to protect and warn user of powerlines above mast.
Also: Pneumatic telescoping masts from 20 to 134 ft. for ENG use.

Winsted Corp. 6921, S6126
Intro: Vrx V 883, 78.75" Vertical Rack with Fully Adjustable Rack Rail; Wrap around Edit Desk E4400, New Elegant desk will feature Sony's ES-7 Edit Station Extra large desk top with Two 24.5 Rack Cabinets for 19" rack mount electronics.

Wireworks Corp. 7206
Intro: CS-Series Microphone Cable features high flexibility, durable outerjacket, for professional use; VMP Video Multipin Interconnect System simplifies multiple coaxial termination by allowing as many as 24 video signals to be housed in a single connector; also computer generated custom panels, for virtually any connector combinations and unlimited engraving easily accomplished with an accuracy of .001 inch.
Also: Multipin disconnectable cabling components, transformer isolated microphone splitters, audio/video multipin cable assemblies, microphone and speaker cable assemblies, cable testers, and Bandits@cable markers.

Wohler Technologies 9773
Intro: Wohler VSDA in-rack self-powered audio monitor that monitors and demuxes and converts ERTS digital signals; Chromatec AM-4-in-1 picture and on-screen audio meters with four

channels of analog and/or digital level metering plus phase, sum and difference; ImageStore Logo Inserter and Image Library; ImageStore UpStream Stillstore (SDI); Easykey Downstream Keyer and AB Mixer; EasySound Digital Audio Mixer; BEL 1000 digital audio signal modifier/breakout box; BEL 7310 stereo delay/synchronizer; BEL 7410 mix-minus regenerator; BEL 5110 stereo profanity delay; BEL 1100 silence monitor alarm.
Also: Self-powered speakers systems; level and phase meters; audio alarm systems; audio source selectors.



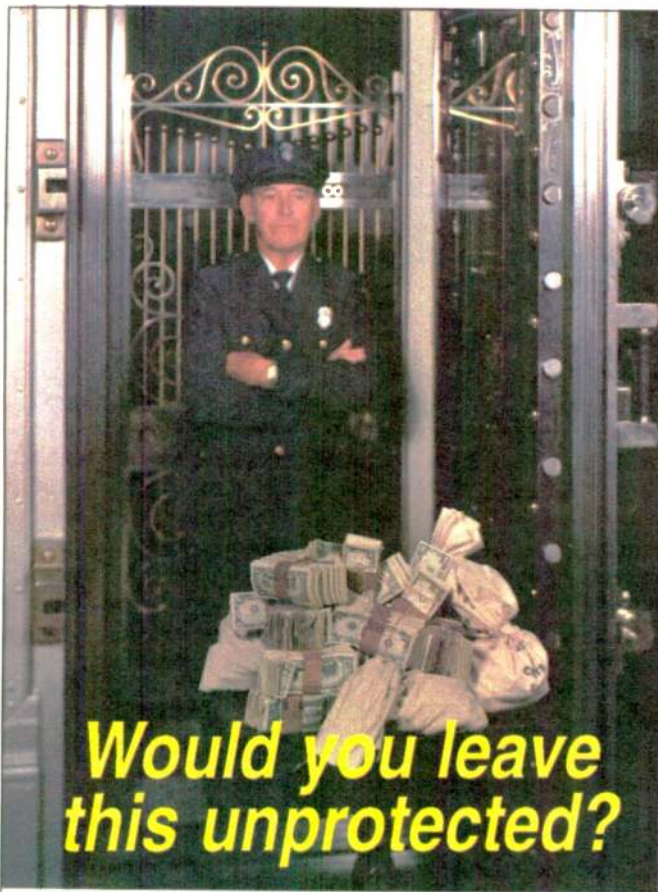
Yamaha MD4 MiniDisc Multitrack Recorder

workstations for automated digital mixing. Has 24 inputs, four bus plus stereo output; Yamaha MX12/4 4-bus mixer features 12 inputs with peak indicators, eight inputs are mono, others configured as stereo channels; Yamaha Rev500 Reverberation Unit for dense reverberation and smooth decay, includes 20-bit A/D D/A converters.
Also: Audio amplifiers; analog and digital recording consoles; live house and monitor consoles; sound reinforcement consoles; Club Series speakers; audio signal processors.

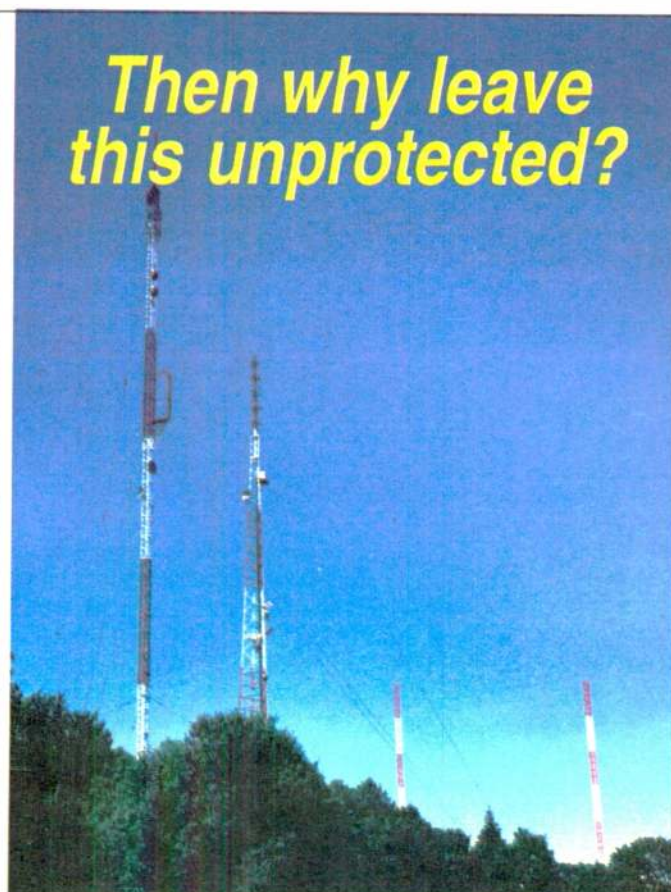
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INTERNATIONAL UPDATE

Pacific Missionaries Thrive

Neil Sanderson

Christianity thrives in the Pacific, and a new generation of missionaries is arriving, armed with CD players and radio transmitters. Ten Christian radio stations are on the air across the Pacific, and more are planned. Money from U.S. donors helps many of these stations, some of which serve U.S. territories.

New generation

United Christian Broadcasters (UCB) Pacific, based in New Zealand, operates a nondenominational station in the Kingdom of Tonga. Indeed, it was the

King himself who suggested establishing the station, known as Letio faka Kalisitiane (Christian Radio), to serve his 95,000 subjects.

Letio faka Kalisitiane was set up by volunteers from the United States and New Zealand. They arrived in 1991, carrying the entire studio in their airline luggage. A pastor from Idaho brought a 400W FM transmitter he had built himself.

When the ship carrying the transmission tower was delayed, the volunteers placed an antenna in a palm tree near their studio. They put the transmitter in a Land Rover under the tree, connected the cables and found, to their enormous

relief, that everything worked fine.

With its proper tower, Letio faka Kalisitiane now covers all of Tongatapu, Tonga's main island, from studios near the royal palace.

Graham Carter, managing director of UCB Pacific, said getting on the air was only the first challenge for Christian radio in Tonga. The station needed programming, but did not want to import "western" radio into Polynesia.

"We wanted to work with local churches but, at first, they saw us as a threat," he said. "Then, when they saw the power we had to reach people, they all wanted to work with us."

Carter said UCB Pacific does not want local congregations to use their free airtime just "to repeat Sunday sermons." The station philosophy emphasizes "a very practical, pastoral side to the church," he said.

"We have tried to direct programmers into specific paths, such as making programs about health or programs for children," said Carter. "We have really become a community radio station."

Funding

UCB Pacific does not raise money in Tonga, but provides approximately \$2,000 (U.S.) per month to keep the station on-air with a full-time manager and a part-time technician. Most income comes from Pacific islanders living in New Zealand. Like other religious broadcasters in the region, the group also relies on donors in the United States and Europe.

UCB Pacific hopes to expand to nearby Western Samoa, but the capital city of Apia is already a competitive market with four stations.

Radio Graceland in Apia is operated by Go For Christ Ministries. The station manager, Marjorie Meredith, said Graceland went on-air in 1994 to provide "Christian programs for all ages." The station broadcasts 18 hours a day using FM transmitters at two sites. With a full-time staff of 12, Graceland sells sponsorships and accepts donations.

To the west of the Polynesian nations of Tonga and Samoa lies Melanesia, the region that includes the largest Pacific island countries. Christian radio is growing there too.

Fiji has 11 radio stations, including Your Voice of Hope, a Christian broadcaster that signed on last year. The station uses five FM transmitters to reach most of the 715,000 residents of Fiji.

Paying approximately \$10,000 a month to lease equipment from the Fijian state broadcaster, the station survives on donations and local fund-raising. Thirty-six volunteers keep Your Voice of Hope operating 24 hours a day, with a format company president Semi Meo described as "inspirationally Christian, 100 percent."

Purchase airtime

In the largest country in the region, Papua New Guinea, Seventh Day Adventists produce an hour-long magazine program in their own studio. To reach the potential audience of almost 3.5 million scattered across rugged islands, however, the Adventists buy airtime on the extensive state-owned radio network.

Throughout the Pacific, local churches have long used existing broadcasting systems. The rise of Christian radio stations indicates that state broadcasters have not been able to meet the needs of everyone, according to Hima Douglas, chairman of the Pacific Islands Broadcasting Association (PIBA).

"Historically, the church and government have preferred to remain detached from each other," said Douglas. "Since most broadcasting organizations were funded from the public purse, it followed that they too preferred to keep the church at arm's length. The churches had access to radio, but access was limited."

Christian stations are particularly plentiful in the northwestern Pacific, in those Micronesian nations linked to the United States as territories, commonwealths or "freely associated independent states."

Guam, with 140,000 inhabitants, has

See PACIFIC, page 73 ►



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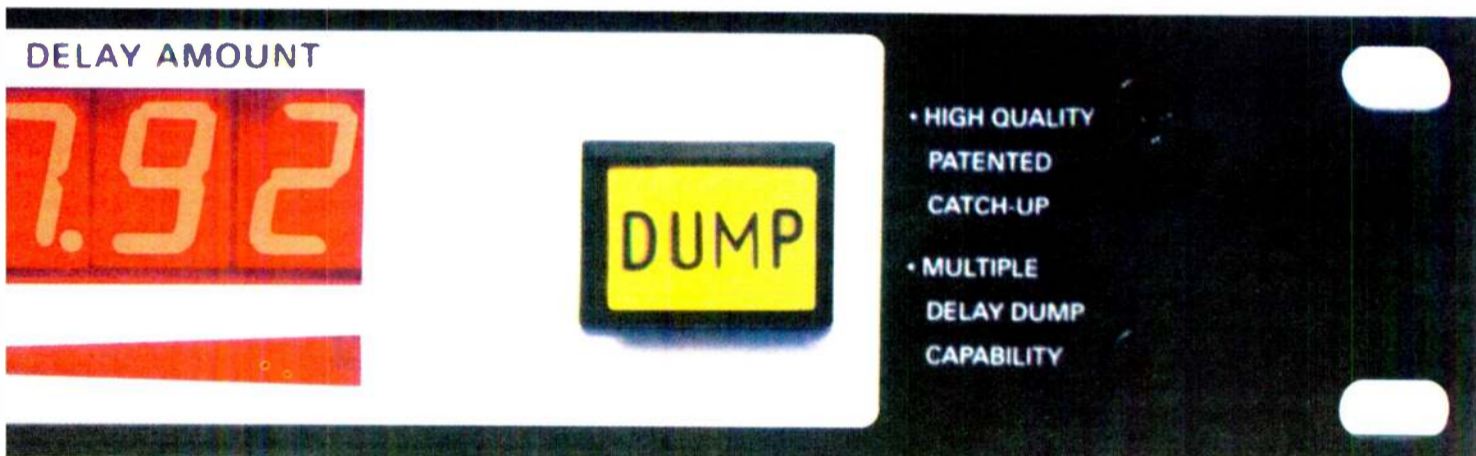
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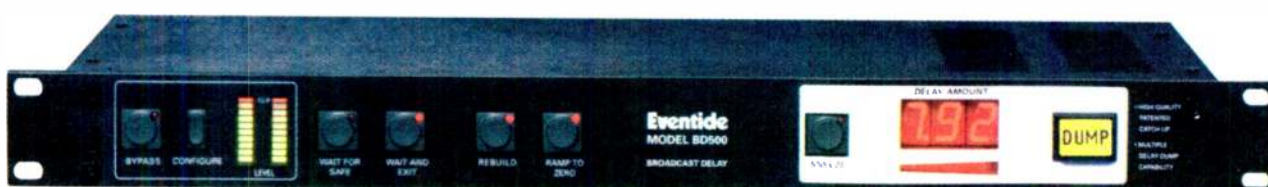
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World Radio History

BOOK REVIEW

Novel Celebrates Glory of Radio

Alan Haber

Ten-year-old Jimmy Gill, without parents but full of hope and dreams, moves with his grandmother to Birmingham, Ala. Worried about leaving his friends and school, the boy soon becomes absorbed by the sounds emanating from his grandmother's Zenith console radio.

The boy becomes entranced by radio, which will soon consume him. Sitting in the center of a fast-moving see-saw, Jimmy Gill will have to make the right choices to get back to the medium and the people he loves.

Many of the twists in radio veteran

Don Keith's beautifully written new novel "Wizard of the Wind" will be familiar to readers in the radio industry.

"Wizard" tells the story of a boy who discovers a local radio station, WROG, operating behind his house. As a man, he falls in love with a beautiful country singer named Cleo Michaels.

"Wizard of the Wind" is also about the friendship between Jimmy Gill and Detroit Simmons, a local boy who becomes a talented engineer and helps Gill build a radio empire, the Wizard Broadcasting Network.

Along the way to success in radio, against a backdrop of great music and

situations and events drawn from Keith's own radio life, Gill and Simmons encounter a wide variety of characters. They include a couple of unsavory fellows who help finance Gill's operation and expect more than a little in return. Gill becomes consumed by his empire and risks losing what he has achieved.

How Gill turns a potentially disastrous set of lemons into sweet lemonade is only one of the many pleasures of Keith's satisfying read, which should come as an especially welcome treat to radio professionals and radio buffs.

The world of Don Keith

Author Keith has turned storyteller for the second time with "Wizard." His first novel, "The Forever Season," was published in 1995.

During Keith's 20 years in broadcasting and journalism, he won Billboard Magazine's Radio Personality of the Year award in two different formats — country in 1982 at WJKZ(FM) in Nashville, and contemporary in 1971 at WVOK(AM) in Birmingham, Ala.

Currently working with Tapscan Inc.,

a Birmingham-based developer and marketer of computer software for broadcasters, Keith has been doing an occasional weekend oldies show on WODL(FM) in Birmingham.

There's a lot of Keith in the character Jimmy Gill, but Gill is "a much better jock and much better businessman than I ever could hope to be," said Keith.

"Practically all the inside radio stories (in the book) were things that either actually happened to me or that I heard about," he said. "We all know those radio stories."

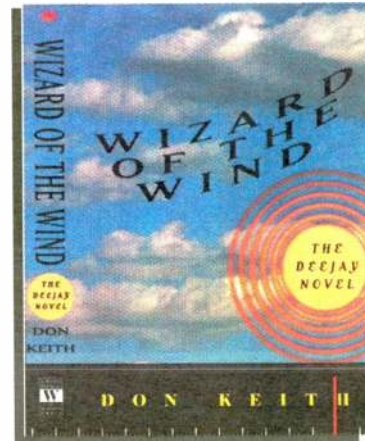
Although he didn't discover a radio station near his house as Jimmy Gill did, Keith said he "did discover radio listening to a big, upright Zenith. It happened to be my dad's."

Detroit Simmons, Gill's friend, is a composite of several radio guys Keith has known; like Simmons, Keith was an engineer.

"Wizard of the Wind" can perhaps be seen as a warning to radio professionals who are being consumed by the business of the medium and are forgetting the reasons they got into radio.

"Radio to me is a lot more than a business," said Keith. "We're sort of like circus people. We're in the entertainment business first and the ad-selling business second. At least some of us are."

See WIZARD, page 73 ▶



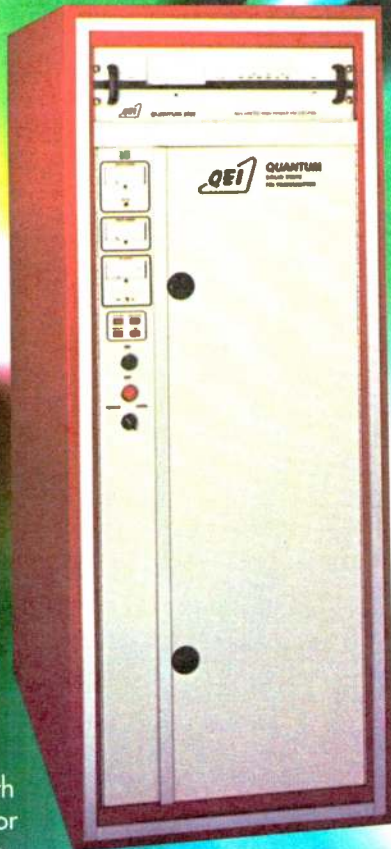
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The Pacific Word

► PACIFIC, continued from page 70

three Christian stations. There is Catholic Educational Radio KOLG-FM. Just up the dial is KSDA-FM, operated by the Seventh Day Adventists.

On AM is KTWG(AM), a veteran of the Christian radio scene, operated since 1975 by U.S.-based Trans World Radio. KSDA-FM and KTWG also have sister operations that transmit from Guam to Asia using shortwave.

Some 300 kilometers north of Guam lies Saipan in the Northern Mariana Islands. Saipan is well-known to those in broadcasting as the home of shortwave Christian stations owned by the Christian Science Church and by the Far East Broadcasting Co. (FEBC).

The island also has a local Christian station, the venerable KSAI(AM), Family Radio, built in 1978 and owned by FEBC. According to Station Manager

Bob Springer, "KSAI is non-profit, but generates revenue necessary for operation from a limited amount of advertising." Programming on the station includes secular music and informational programs.

On Majuro in the Marshall Islands and on Pohnpei in the Federated States of Micronesia, local Baptist congregations operate new radio stations assisted by donors in the United States.

The Majuro station is on-air 18 hours a day, and the Pohnpei station broadcasts 24 hours a day, with local news and sports, free public service announcements and a secular classical music feature.

Even the tiny nation of Palau has a fledgling Christian FM broadcaster

serving its 12,000 citizens. The station is also becoming a strong competitor to the state-owned AM station, Radio Palau.

How do established broadcasters feel about the new arrivals?

Graham Carter said the state-owned Radio Tonga was not happy when UCB Pacific set up its Tongan station six years ago.

"They felt we threatened their viability," he said, "but I feel we have helped them." Among the innovations introduced by Christian Radio are FM transmission — now adopted by Radio Tonga too — and broadcasting around the clock, seven days a week.

Hima Douglas said PIBA is not unduly concerned by the newcomers.

"Reports reaching me from colleagues in the region indicate that most people listening to Christian stations are of the

older generation," he said. "Young people listen for short spans, but tend to retune to the more commercial sound where there is a variety of music."

Douglas does not underestimate the power of Christian radio, however, especially when state broadcasters are under pressure to increase advertising revenue and become self-sustaining.

"The greatest concern for the public broadcaster," he said, "is that a religious station will introduce a free service with all costs met by donations from offshore and, having thus gained a foothold, will later ask to be permitted to carry advertising."

For state broadcasters truly worried about competition from Christian stations, Douglas suggested they defend their market share, perhaps by starting their own Christian radio service.

Keith Knows His Radio

► WIZARD, continued from page 72

"Obviously," he said, "you've got to have both sides to be successful. But when you let one side override the other, then you've got trouble. I think a lot of the magic goes out of the medium when computers are the only on-air talent you have."

Lost magic

This from a man who sells computer software for a living. "Obviously, I'm very much in favor of computers," he said, "but we've lost a lot of the magic."

While writing "Wizard," Keith said he was concerned about "being too 'inside' ... I thought, 'Well, I'm just going to write this for radio guys and if a publisher publishes it, fine. If they don't, I'll just pass it around and let the radio guys read it.'"

For Keith, writing "is exactly like being on the radio, in that you sit in



Author Don Keith

a small room trying to create something that's going to touch people in some very profound way," he said. "But once you let it out into the open, you can't take it back. So you're pretty much stuck with the final product."

"Wizard of the Wind" is a Wyatt Book for St. Martin's Press.



Alan Haber is a frequent contributor to RW. His Haberspace column about radio stations on the Internet appears regularly.



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Think You Know 'Whad' Ya Know?'

Terry Skelton

Only a handful of radio network programs are produced live with an audience. Of those, fewer yet go on the road regularly. "Whad'Ya Know? with Michael Feldman" went on the air in 1985. Its schedule of weekly broadcasts includes eight annual road shows, loved by the staff and audiences alike.

Based in Madison, Wis., the comedy quiz show is produced weekly by its host and executive producer Michael Feldman, producer Chris Bannon and Wisconsin Public Radio for the Public Radio International network. The format is sort of Groucho Marx with telephones and live music.

The live, two-hour show begins with Feldman's news-and-events comedic monologue, an interview with a guest, and music from the show's jazz duo of John Thulin on piano and Jeff Eckels on bass. Then Feldman charges into the aisles with a wireless mic and a fist full of index cards filled out by audience members. He calls out names, engages people in freewheeling conversation, answers questions on all topics, and looks for the zany, witty and clever aspects of ordinary people.

Eventually he returns to the stage with an eager volunteer to play the "Whad'Ya Know Quiz." The phones are opened to listeners who want to play along with the



Michael Feldman

contestant. Callers without a clue are cut off mercilessly, but Feldman always takes time to ask what people are doing with their Saturday and how things are going out there in Skokie.

Announcer Jim Packard keeps track of the answers, categories and prizes, and serves as the "panel of expert" in case of disputes. Feldman is convinced that Packard is a descendant of George Fenneman, sidekick announcer to Groucho Marx.

Contestants win prizes ranging from

Wisconsin cheese to pink lawn flamingos. If they're very good and get to the final round, they might even win the "giant kielbasa."

The second hour features true but ludicrous memos sent in by listeners, more music, another quiz, and "The Town of the Week" feature, which includes an unrehearsed phone call to a random inhabitant.

The road show gives fans a chance to see the production in person and to support their local station, which shares in profits from ticket sales with Feldman and Wisconsin Public Radio. At a recent show in Phoenix, 2,000 fans showed up to enjoy Feldman and guest Glen Campbell. Drummer Clyde Stubblefield joins the show band, and a local guest band usually takes part. In Phoenix, the local station, KJZZ(FM), sent a large team of staff dressed in black slacks and white shirts to serve as ushers. Among them: General Manager Carl Matthusen, previously chairman of the board of National Public Radio.

Feldman's personality makes the show work.

"If anything," he said, "I'm an iconoclast ... or it may just be a hormone problem."

Feldman, 48, was drawn to performers and radio early.

"As a kid I really loved Groucho Marx, Ernie Kovacs, Steve Allen, Larry Lujack and WLS in

Chicago," he said. But he was a teacher and spent some time in commercial radio before finding this outlet for his quick mind and wit. He said he loves broadcasting because he "likes making a connection to the audience." In Phoenix, that connection was visible. For more than an hour after the show, he and Packard sat on the edge of the stage, talking and signing autographs until the theater was empty.

Wisconsin Public Radio is part of the University of Wisconsin Extension Service and is the second largest state radio network in the United States. Stations pay a fee to carry the show. The show operates with an annual budget approaching \$500,000, producing 28 shows in Madison, eight shows in other cities, and five fund-raisers. Madison shows are sold out three months in advance; organizers are looking for a larger home theater. The popularity of the show is growing. It now airs on 130 stations, with estimated listener come of one million people.

The show's first day in the studio is Friday, consisting of setup and sound checks. On the road, the team travels on Thursday, sets up Friday, broadcasts Saturday and flies back Sunday. The road staff of seven includes a production assistant, Debbie Builder, and a "phone guru," Lyle Anderson. The staff must depend heavily on the local station for advance work, to send them a detailed videotape of the venue, and provide support at the broadcast.

Feldman, Packard, Thulin and mixer Rick Kirkpatrick have worked together since the show began; Eckels and Blaine have been there for years.

"We're in our 11th year now and the crew gets along fine," Feldman said. "We actually travel well together. We're kind



Photo by Terry Skelton

On Stage in Phoenix

of almost like a functional family. ... Like when we eat out, it's the same after 60 road shows, Rick always picks at his food and complains about the salad, and we're always \$7 short for the check and it's always the same suspects and we've got to pry it out of them. Of course, Jim's a 10-percent tipper and I'm a 20-percent tipper so it averages out.

"They're a good bunch of people."

Most of the equipment, too, has been with the show for years. The program is one of the few still produced in monophonic, and the only entertainment show on PRI done in mono. According to technical director Tom Blaine, stereo is under

consideration. This simplifies the engineering aspects. The show operates with a three-person engineering crew: Blaine, Kirkpatrick and assisting engineer Steve Colon.

The show takes the same equipment on the road as it uses in the studio. The heart of the operation is a DDA Q Series 24x8 audio console with an 8x4 matrix.

The crew travels with no back-up equipment except a two-line Comrex frequency extender. They can use local sources for any failed equipment.

At home, a PA mix from the DDA console feeds a Turbosound SR system. On the road, a hired sound company usually does a separate house and monitor mix. The show uses Shure Beta 87 microphones for talent; Feldman plunges into the audience with a Shure W25DR diversity wireless mic. Two AKG condenser shotguns pick up audience response. Talent use Sennheiser headphones on stage, but the show does not use a wireless monitor, communications or IFB system.

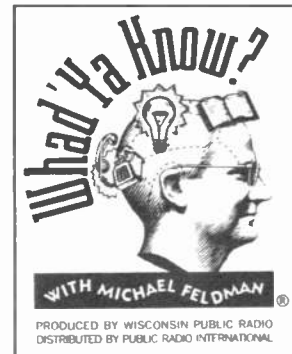
The engineering crew usually mixes in a separate room. Sometimes they are obliged to set up in the wings and mix on headphones. A combination of Symetrix and Telos equipment handles up to six phone lines. An ESE SMPTE digital clock system keeps everyone on time and synchronized with the network.

From Madison, the show up-links to the public radio satellite via the WPR earth station. In the past, road feeds were sent via transportable uplinks, but since 1994, a Telos Zephyr has returned the signal to the public radio system technical center in Washington via ISDN phone lines.

When asked what he would like to see in print about his show, Feldman replied "Oh, something like: 'Surprisingly deep humanitarian instincts and warm personality belie the quick-witted cheap shots that (he's) constantly making.' It'll never happen, but I'd love to see it."

The show is a good listen for adults who enjoy intelligent humor and jazz.

Terry Skelton is a freelance technical writer and audio consultant.



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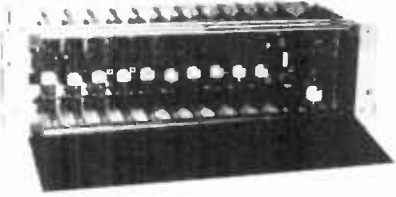
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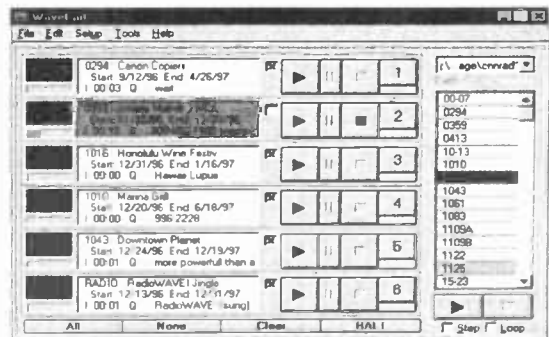
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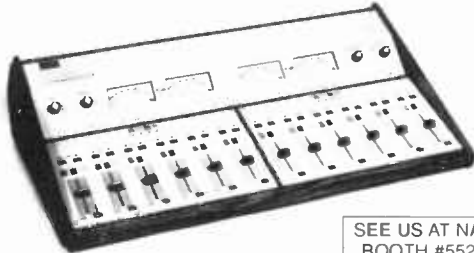
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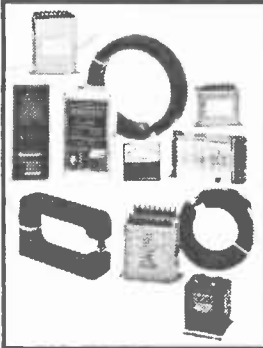
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Tread Lightly on These Structures

Troy Conner

I have climbed hundreds of transmission towers over the years and logged literally hundreds of thousands of cumulative vertical feet. Most of the structures I have reason to climb are in reasonably decent shape — not great, mind you, but structurally sound. In other words, most of them are not in any immediate danger of collapse.

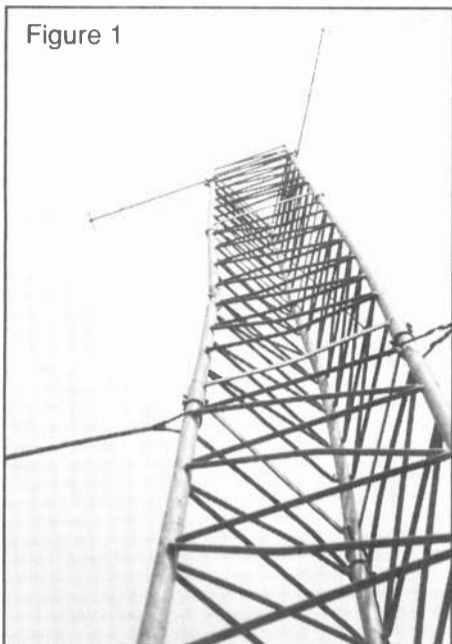


Figure 1

not unusual. When properly designed, erected and tensioned, a tower like this is plenty stout for its loading. A climber might be able to induce a bit of swing or sway, say, 2-3 feet at the top, but there would be no danger of doing any damage.

I had been asked by a small church to look at this tower, as they were thinking of purchasing it along with a station. The engineer who called me also informed me that several tower companies had refused to climb this particular structure, so I was expecting the worst. Unfortunately, I was not to be surprised.

Even at a distance, I could see that this tower had a serious problem. The top 20 feet was canted about 10 or 15 degrees out of plumb (see Figure 1). Closer examination made the problems of this tower even more evident.

What was most disturbing was that the tower obviously had been put up with no engineering whatsoever. I fully attribute the appalling condition of this tower to the original erection crew. To me, whoever put up that tower should be held criminally negligent! They had gathered used tower sections from two different manufacturers and created this abomination. Lack of experience does not begin to

This is not always the case. One tower in particular stands out in my mind as being the worst that I have ever had the "pleasure" to climb. I was amazed that it was standing at all, much less that it had actually weathered years of storms.

First, let me paint a mental picture of the type and size of the structure. Imagine, if you will, a small guyed tower 140 feet tall, with a face width of 12 inches (a bit more narrow than a household extension ladder). The structure was stayed by four guy levels, with three guy cables at each level. A folded uni-pole AM radiator was installed on the structure.

Skinny towers

Now, 12 inches of width, for a height of more than 100 feet, may seem a bit skippy to you, but these proportions are

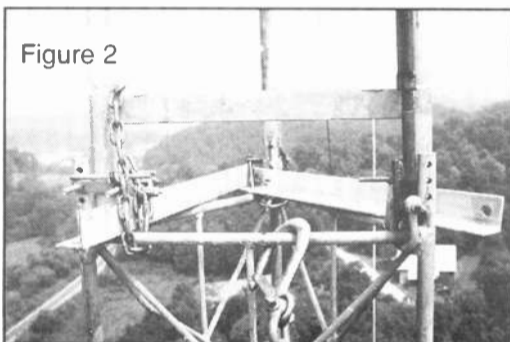


Figure 2

Photos by Troy Conner

describe it. In erecting this tower, the crew actually created a legal liability instead of a financial asset.

Teetering towers

Starting at the ground, I examined three guy anchors. While the connections were in fair shape, the cable tensions were horribly low. At the base of the tower, I was in for my next surprise. Normally, a tower is firmly bolted to the concrete foundation pier. In this case, the tapered

base section actually stood on top of the anchor bolts. Nothing prevented the tower from merely falling off the pier.

The concrete foundation pier had been poured inside an 18-inch galvanized culvert pipe, which extended about 4 feet

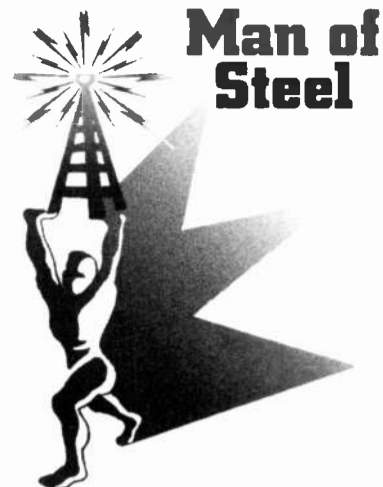


Figure 3

above grade. In addition to being too small and protruding way too far above ground, the pier appeared to have shifted slightly downhill, causing a distinct lean.

I did a small prayer, and stepped as lightly onto the tower as I could. I climbed extremely slowly, so as not to induce a violent vibration. Few people realize that a climber can cause some oscillation on even the largest structures. On a small tower, a heavy-footed, fast-moving climber can really get things to swangin'.

Examining the first splice, I noted that the bolt holes between sections did not align to line up. As a result, the original crew had used smaller diameter bolts,



Later, the manufacturer of these sections told me that their towers must be assembled in sequence, although the sections appear identical. Not only were bolts used in only about half of the holes; the bolts themselves were too short, often only catching part of the nut.

At 100 feet, I decided to climb no further. At this point, the tower was held together with tenuousness by one bolt on one leg, two U-bolts haphazardly around the second leg, and a turnbuckle on the third. Apparently, the crew, having run out of sections from one manufacturer, simply decided to create this fine interface (see Figure 2), in order to use some handy sections from another company.

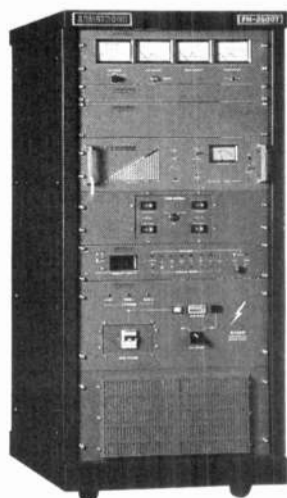
The pièce de résistance was the old rusted come-along with two of the four strands broken. In lieu of bolts, this splendid arrangement had been contrived to connect the seventh and eighth sections (See Figure 3). The top 40 feet of tower did not appear to have any splice bolts; only gravity and friction held the sleeve-type connections between sections.

Next month, I'll be writing about tower routine inspections. I hope this article has helped to reinforce their importance.

◆◆◆

Troy Conner is the owner of Tower Maintenance Specialists. Reach him by phone at (704) 837-3526 or via fax at (704) 837-1015.

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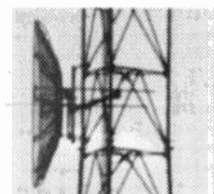
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SBE Is More Active Than Ever

Terrence Baun
SBE President

With this article, the Society of Broadcast Engineers is pleased to inaugurate an active agreement with two of our industry's leading publications. From now on, **RW** and **TV Technology** will be important sources for regular updates on SBE activities of interest to the broadcast engineering community.

One of the reasons we're so pleased to be associated with IMAS Publishing is that we believe these newspapers are among the most useful and widely read publications in the broadcast technology industry. We're excited about the opportunities that lie ahead through our active association with IMAS, just as we are excited about the continuing efforts the SBE is making to enhance the benefits of membership and help advance the state of the art of the broadcast engineering profession.

As part of this inaugural article, we'd like to bring you up to date on what SBE is offering you for 1997 and beyond.

Extensive programs

I'm pleased to say that your SBE has made great strides in the past few years, all accomplished without increasing your membership or certification fees. Here are just some of the highlights:

- We are co-presenters (with NAB) of our industry's premier technical event, the annual Broadcast Engineering Conference at the spring NAB Convention. This year we will present, for the first time at a spring NAB, Ennes Educational Seminars prior to the show, providing our NAB-bound members another attractive and cost-effective way to further their technical education.

- At the same time, SBE continues our outreach to local and regional chapters with our national participation in one of our fine regional conventions each fall. This year we will hold our fall board meeting, annual membership meeting and awards banquet at the Central New York SBE Regional Convention at Syracuse in late September, giving local chapters another opportunity to interact with the national officers, board and staff.

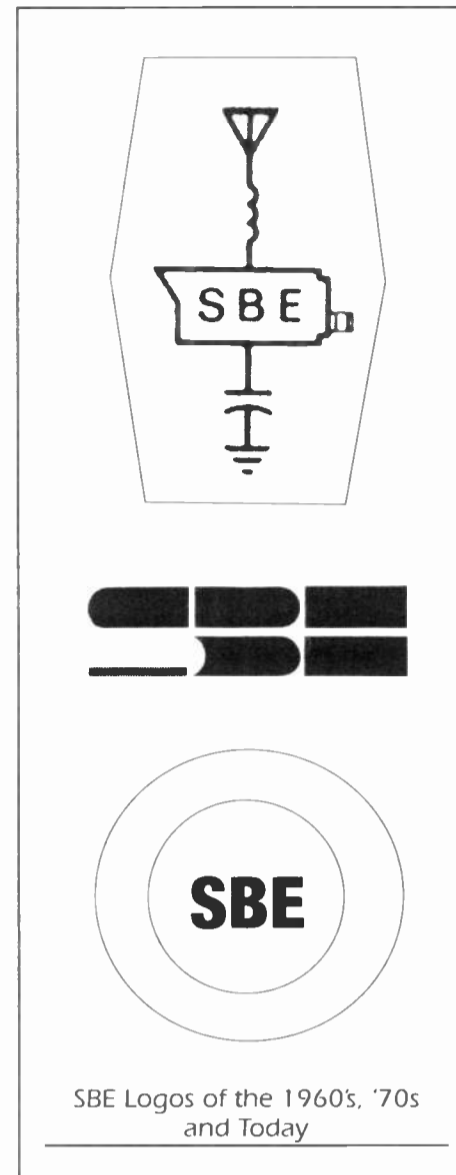
- Our Certification Committee, following the suggestions developed as a result of our successful Strategic Planning Meeting last summer, is inaugurating two new levels of SBE Certification, intended for engineers working in non-broadcast areas of video and audio production. It is our intent that through this program we can introduce more media professionals to the SBE family while at the same time extending our own definition of what constitutes media technology as we approach the 21st century.

- Our Frequency Coordination Committee is considering a pilot program with the Federal Communications Commission which would allow the SBE to take an active role in helping to administer the Part 74 Broadcast Auxiliary Frequencies, not only to insure the accuracy of the database, but to assist in timely grants of requested frequencies.

- The Ennes Educational Foundation Trust continues to grant scholarships, publish educational materials, and provide the Ennes Seminars that are such an important part of our outreach to our members through the regional conventions and events hosted by the state broadcasting associations.

We continue to publish materials of real value to the broadcast engineering profession. Our newest project is a detailed booklet on how to write station operations manuals, complete with a diskette containing "boilerplate" text into which station call letters and specific station operating details can be inserted for printing. This should be a great companion volume to our EAS Primer and our Radio and TV Operator Handbooks.

- And speaking of EAS, our EAS Committee continues to work actively with the FCC in refining the new EAS rules and promoting system improvements suggested by our membership. We don't consider our work done until the EAS system works, not only in the public interest, but also in a way that makes sense for the broadcast industry and truly accomplishes its objective of providing a reliable and cost-effective



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61 Years Ago

Reprinted from Radio World
April 1936.

Editor's note: The RW of old, printed for a time in the 1920s and 1930s, and today's RW are unrelated except in name.

RCA Field Test of Television Due In About a Month

The Radio Corporation of America will begin first field tests of television in about a month.

The television transmitter will be on the Empire State Building, in New York City.

The annual report of the corporation sets forth:

"The New York area has been selected as the one in which the experimental field tests will be conducted. Test receivers will be operated by technical personnel of the RCA organization throughout this area. The transmitter will be connected by radio with the television studio, now under construction in the NBC plant, RCA Building, in Radio City, New York. The installation is practically complete, and within a month or two the first tests should commence.

Camera Utility One Factor

"This does not mean that regular television service is at hand. It will be necessary to coordinate a number of important elements before television on a regular basis of service can be established. For example, it will have to be determined how far the transmitter can send good television pictures; also with what consistency and regularity pictures may be transmitted with the system in its present state of development. We must investigate and define the possibilities of the television camera for indoor and outdoor pick-up.

warning system that is compatible with common-sense station operations.

- Our Job Line continues to be one of our most heavily used member services, and it is now available via telephone or through the SBE home page on the Internet.

By the way, keep looking for new and interesting services via our Internet site www.sbe.org, including a complete membership directory, a special page for Sustaining Members (including links to their home pages), and on-line purchase of items from the SBE Store.

Growing membership

- SBE membership continues to grow, even in the face of the downsizing we all know is taking place in the broadcast engineering profession. Total membership at the beginning of 1997 was just shy of 5,000, continuing the yearly growth pattern that we have experienced since 1992.

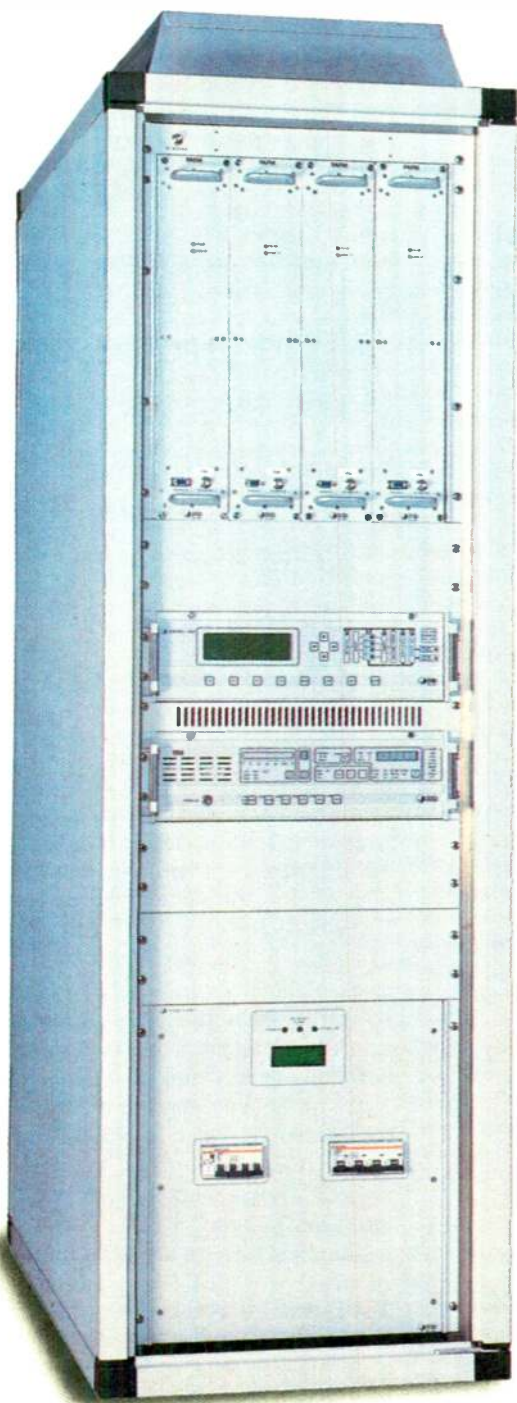
An active program of member benefits, plus an extremely efficient and effective administrative team, are the primary reasons for this success.

I am excited about our continued program of growth, and I invite you to share in that program through your active participation in SBE activities on your local level. Now, more than ever, SBE membership is a valuable asset that can help broadcast engineers sharpen and maintain their skills while enjoying the benefits afforded by the representation of a truly national organization.

Terrence M. Baum, CPBE, is in his second term as president of the Society of Broadcast Engineers. He is president of Criterion Broadcast Services in Milwaukee. Reach the SBE at (317) 253-1640, or visit its website at www.sbe.org

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World Radio History

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The most popular RF current measuring device has long been the thermocou-

ple ammeter. This device consists of a DC meter movement connected to a thermocouple through which RF current flows. When the thermocouple is heated, a proportional current flows through the meter winding, causing deflection of the meter.

Thermocouple RF ammeters have the advantage of simplicity. Typically they are manufactured with stud-type connections by which they are connected into the RF circuit under test. To prevent damage due to lightning currents or static discharges, a make-before-break switch typically is provided in permanent metering circuits to allow the meter to be

placed into the circuit for measurement and removed from the circuit for normal operation, all without disturbing the continuity of the RF current path.

Some metering circuits are manufactured with a "hot jack," a make-before-break receptacle into which a removable meter is plugged. The meter itself usually is mounted on a phenolic handle to permit it to be plugged safely into the RF circuit without causing RF burns to the user. The advantage of this plug-in type of meter is that the thermocouple meter itself is stored in the transmitter building, out of the elements that can affect its calibration.

Thermocouple RF ammeters have sev-

eral advantages: relatively low cost, simplicity, accuracy and broad frequency range. Disadvantages include susceptibility to damage. Lightning currents and static discharges through a thermocouple meter usually are fatal to the unit. Nearby lightning discharges can cause magnetization of the meter movement, resulting in inaccurate readings. This type of damage is particularly troublesome, because it may not be readily apparent, as a catastrophic failure would be.

The process of checking the calibration of a thermocouple RF ammeter is easy, thanks to its wide frequency range. Simply connect the meter being checked in series with a calibrated AC ammeter across the secondary of a variac. By adjusting the amount of current flowing with the variac, you can compare the indications of the two ammeters. If you find that the RF ammeter is in error, you can attempt repairs, or make a calibration chart to validate the meter's indications.

In a directional array, where base current RF ammeters are used to maintain base current ratios, it may be desirable

The process of checking the calibration of a thermocouple RF ammeter is easy, thanks to its wide frequency range.

during the construction and tune-up process to calibrate the RF ammeters against each other. If one meter in the set is at significant variance with the others, you can replace it with one that tracks the other meters, or make a calibration chart. If the base currents in an array are found to be out of tolerance, but all the other array parameters and monitor point field strengths are normal, check the calibration of the thermocouple RF ammeters before doing anything else.

If you believe that the inaccuracy of a thermocouple meter is caused by a magnetized meter movement, use a degaussing coil to demagnetize it. In most cases, the meter's accuracy will return when the residual magnetism has been removed.

Toroidal RF Ammeter

The other type of RF ammeter that is becoming popular is the toroidal-type, which consists of a shielded, toroidal current transformer connected to a rectifier/filter that in turn drives a meter. This type of RF ammeter employs a separate, shielded current transformer, which produces a fixed voltage per ampere of RF current flowing in the circuit being measured.

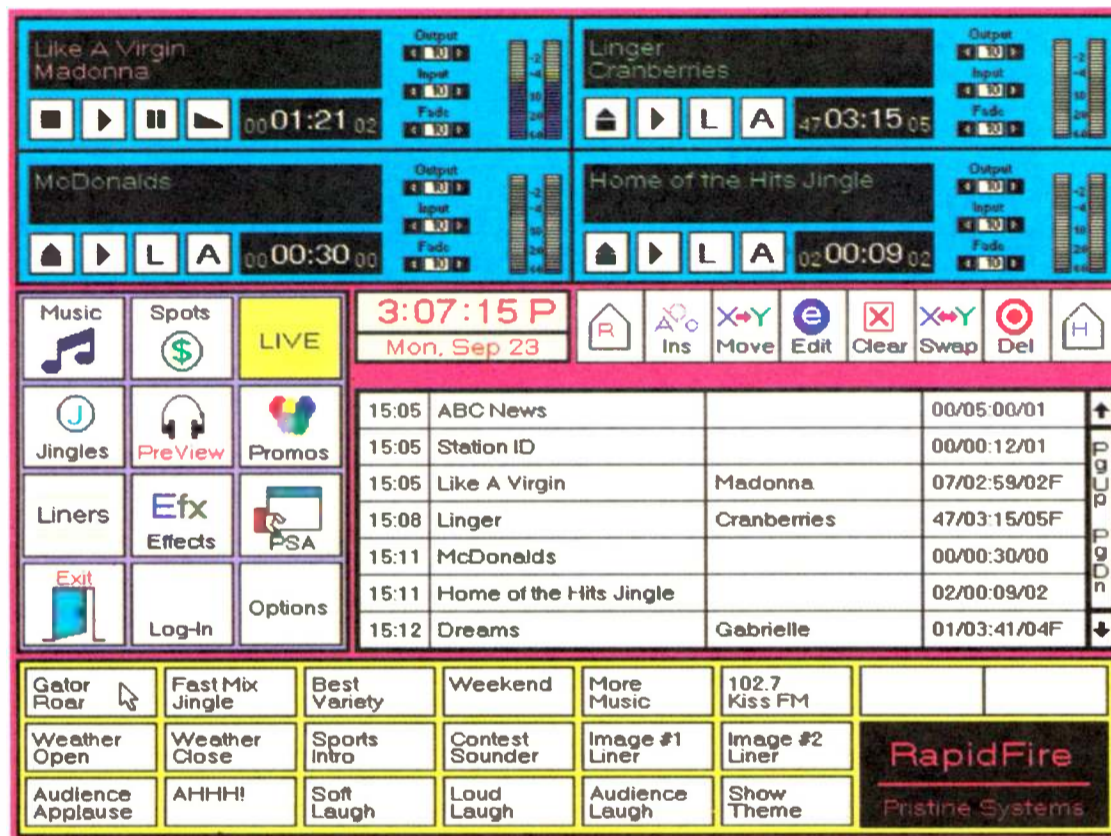
The meter is housed in a separate unit and contains the rectifier, filter and a switch that removes the meter itself from the circuit. A relay that allows remote activation of the meter is optional on some units. The current transformer is connected to the meter unit with a piece of coaxial cable. At the factory, the meter, transformer and cable are calibrated as a system. In the field, you will produce inaccurate current readings if you use a different coaxial cable or switch metering units between transformers.

See FEEDLINE, page 93 ▶

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World Radio History

Army Radio Keeps on Truckin'

Alan R. Peterson

The Army Broadcasting Service (ABS) "K-Truck" mobile FM radio station was recently refit with new broadcast equipment and tested at Fort Meade, Md., and is to be put back into service, according to Don Browne, station manager of the K-Truck.

KTRK-FM signed on at 3:20 p.m., Feb. 11, with "FM (No Static at All)" by Steely Dan. Testing was completed at 7 a.m., Feb. 14, following 48 consecutive plays of Peters Frampton's "Do You Feel Like We Do." The repetitive plays came from a continuous loop cart, played six times an hour for eight hours.

The ABS normally tests its broadcast vehicles domestically in the dead of winter as well as in the heat of late summer. This is to evaluate how well the broadcast vehicles will behave in various environmental extremes.



Photos by Alan R. Peterson

Overnight satellite programming was unavailable during the test, but the truck is designed to broadcast unattended overnight programming via the SRSN network.

RW readers got an up-close look at the self-contained "radio station in a box" in our June 9, 1993 issue. Two years earlier, the K-Truck saw action in Desert Storm, airing music and news to troops stationed in the Persian Gulf.



This original, FM version of the K-Truck differs from the frequency-agile AM station described in the Mar. 6, 1996 RW.

The first K-Truck was fitted with QEI FM transmitters. The refit saw a pair of Broadcast Electronics amplifiers go in. Playback and audio equipment includes Denon CD players, several Tascam cassette decks and two ITC triple-play cart machines.

Carts will remain in service on the K-Truck, say its operators, because the machines use a durable medium that can handle the bumps and shakes of war-torn roads. According to Browne, hard drives could not withstand the forces acting on heads and platters.

The tactical call letters of the station during testing — KTRK — have been reserved for any AM or FM station operated in the continental United States on a temporary basis by ABS. (The call KTRK-TV is assigned to an FCC-licensed television broadcast facility in Houston.)

As seen here, the stock Ford 355 truck has a bulletproof shell containing the

In war as well as in peace, you don't come in until the red light goes out.



Obscured against the tree is a two-bay FM antenna, which can be elevated pneumatically to more than 40 feet. Power output is 250 W.

During the retrofit, a VSWR problem

kept the K-Truck from signing on right on schedule. This was eventually traced to the chosen antennas being unable to handle the 250 W output of the transmitters. Power was cut back to 100 W and the test commenced.

The cramped operator position inside the truck actually accommodates a full-featured Audiotronics console and all the trimmings.

Ceiling height is quite low, so ducking is in order inside the studio. At the far right is a rackmount transmitter ready to go into the rack and into service.

Also notice a little Army ingenuity: By rewiring one of the stock running lights normally found on panel trucks, technicians have created an "on-the-air" light at the door of the K-Truck. In war as well as in peace, you don't come inside until that little red light goes off.

entire radio station. Four leveling feet stabilize the K-Truck while it is in use.

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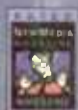
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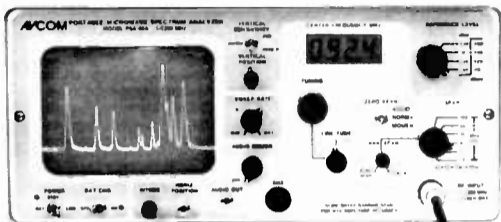
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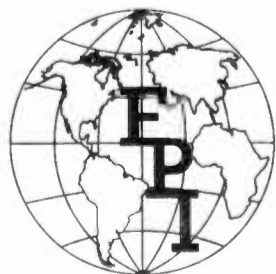
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Radio World, March 19, 1997

Of King-sized Post-its and JAWS

John Bisset

If you feel as though you couldn't live without Post-it Notes — those little yellow slips of paper with the "right" amount of sticky attached to the back — you'll really love Post-it Easel Pads. They're these sheets Post-it Notes! 3M provides these sheets in white or blue grid. I'm partial to the blue grid, because the light blue lines clean up even the sloppiest schematic.

These pads are the size of a standard easel — the kind you see in sales meetings. Why not show your sales manager you're good for something other than installing last-minute phone circuits at remote sites?

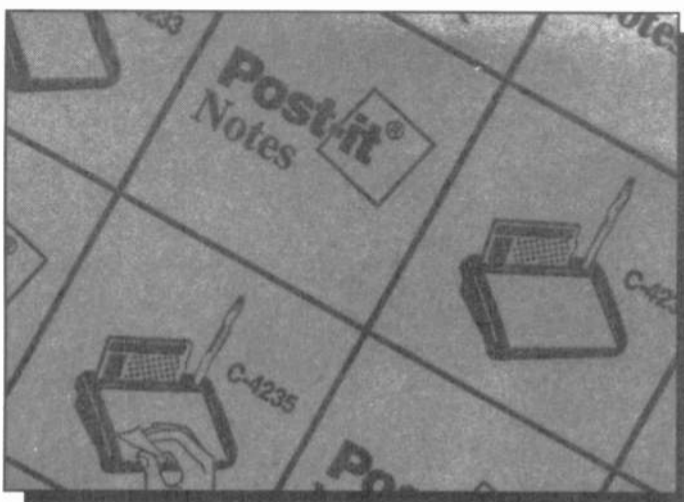
Pick up a pad or two at any office supply store, and you'll love the product! You'll love it, and you'll love the product. The pages are designed to resist bleedthrough, so the ink won't transfer to the wall, or to other sheets under the pad. For more information, circle **Reader Service 222**.

★★★

Art Hadley sent us e-mail to tell about one of his favorite products. They're called JAWS, male and female XLR plugs that are *solderless*. Art asked why we hadn't featured this in this column. I passed on some of the Alcatel JAWS connectors to a colleague for evaluation, and never heard back from him — figured the JAWS had gotten him. Our samples came from Kathleen Karas at Crouse-Kimzey of Annapolis. Call her at (800) 955-6800.

More recently, I had the opportunity to try another brand personally. The solderless XLR connectors that I tried didn't like stranded wire (a la Belden 8451), and required a tremendous amount of hand pressure to crimp the wires onto the lugs before assembling the connector. I thought the idea was great, and for an emergency XLR cable, it wasn't a problem. After assembling about 20 of these, however, my hands were so sore and cramped I had to lean on a pair of pliers to compress the pieces of the remaining connectors. If you have met me, you know I'm hardly a wisp of a guy, and my hands were really sore after this installation!

Until Art's e-mail, I hadn't given the connectors much thought. In fairness, however, Art used a different brand, manufactured under by Alcatel. The part numbers are AC3F1 and AC3M1. I recognized these as the connectors I never got to try. Though they are available through Crouse-Kimzey, Art bought his connectors from Image Communications, (800) 552-1639. They are about the same



price as standard solder Neutrik or Switchcraft XLRs, which is another advantage.

Art recently wired almost 300 plugs, and he reports full use of his hands afterward. Besides, he could type the e-mail to us! Each installation took 60 seconds, and his only tools were a wire cutter and stripper. After completing the connections, he checked each, and found that only two — of nearly 900 connections — were less than perfect.

These connectors are made for solid wire; a stranded version has not been released. Because most of Art's cabling would not be moved, he used primarily Belden solid-conductor audio cables with these connectors. Where equipment was mobile, he used the stranded-conductor cable, which seemed to work fine.

The strain relief is more than 100 pounds. His only problem was trying to find enough room inside for the fat Belden mic cable. The insulation on the conductors made for a tight fit.

Art concluded his message by explaining the need to get the job completed quickly. You see, he was working in Paradise — literally. The studios were two blocks from Waikiki beach!

Reach Art Hadley at the University of Kansas (art@eagle.cc.ukans.edu).

★★★

Harris FM "HT" transmitter customers should have received a service bulletin (FM-446-TLH) pertaining to the HT-3.5/5/7/10FM transmitters. The bulletin describes a modification to the screen power supply, which can be improved by changing to a two-section filter, using higher voltage filter capacitors. The new configuration greatly increases the tolerance of the screen power supply to AC line disturbances, tube arcs or extreme adjustment of the screen voltage.

The modification takes about two-and-a-half hours. For more information, circle **Reader Service 196**, or contact Harris Service and ask about Modification Kit 992-9134-001. Thanks to Harris for making this information available to *Workbench* readers.

★★★

Bob Caithamer of Moody Broadcasting responded about the meat thermometer approach to transmitter operation (*RW*, Oct. 2, 1996). Many of the stations in their chain have used this approach for some time.

They generally insert the sensing rod into the air stack, and read the temperature of the air flow.

Generally, maximum efficiency is obtained with the lowest temperature, and the transmitter PA can actually be tuned by observing the dial.

To improve this method, they found a thermometer made by the Taylor

Company with a dial that spans roughly 300 degrees of arc, and spreads the readings out over a greater length.

◆◆◆

John Bisset is a principal with *Multiphase*, a technical services company. Reach him at (703) 323-7180. Printed submissions qualify for SBE recertification credit. Fax submissions to (703) 764-0751, or send them via e-mail at WRWBENCH@AOL.COM

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See Page 91

Radio World

Resource for Business, Programming & Sales

March 19, 1997

STATION SNAPSHOT

WRSA Rides Huntsville's Growth

Claudia J. Tucker

The wide fields of red clay and white cotton are becoming scarce in Alabama's Huntsville/Madison County as the area continues a 40-year growth spurt, taking radio revenue along into a high-tech future. Radio station WRSA(FM) has been an important part of the local story since 1965.

Huntsville's transformation from the cotton age was sparked in 1950 when the U.S. Army located its rocket and missile programs here, creating the Marshall Space Flight Center. Growth accelerated as high-tech industries were attracted to the area.

No longer a sleepy little agricultural town, Huntsville provides its residents with some of the highest salaries in the Southeast. According to Equifax National Decision Systems, the Huntsville

metropolitan area has a median household income of \$49,187. Madison County has a median household income of \$41,073, placing both above the national average. The direction of expansion will no doubt be influenced by the relative youth of the population: In 1995, the median age of this well-heeled group was 30.

Beyond cotton

Meeting a native Southerner in Huntsville is by no means an everyday occurrence; you are just as likely to bump into someone from Brooklyn, the Silicon Valley or Frankfurt, Germany.

As natives and retailers have discovered, these folks have different tastes. While country formats remain popular, the radio dial now offers more choices, including urban, classic rock and top 40. Huntsville

stations WLRH(FM) and WJAB(FM) air public radio from the University of Alabama and Alabama A&M University, respectively.

Paul Nielsen, a former rocket scientist and station owner of WRSA, has watched the changes since the station went on the air 32 years ago.

broadcast what they wanted to hear from my backyard. I was essentially badgered, and finally dared, into doing just that."

WRSA became the first Class C FM broadcaster in the area, and the first station to offer listeners a more cosmopolitan format. Still the only station in the area to offer easy listening, WRSA calls its format "Beautiful 97." Its frequency is 96.9 MHz. The station also broadcasts local news, entertainment, community service information, CBS World News and World News Tonight. In sports coverage, WRSA recently managed a coup by becoming the area's only carrier of the Alabama Football Network.

WRSA traditionally places emphasis on community coverage. During its first year, WRSA was the only area radio station to cover the 1969 lunar landing launch. In producing this well-received program, the station taped the launch but also added descriptions provided by children who witnessed the event.

Station managers attribute its success and longevity to understanding and consistently satisfying its audience. WRSA General Manager Dave Griffiths said the station, licensed to Decatur, is working to increase its visibility



The Drive-up Prize Window at WRSA

"Back then, most of what you could pick up was country music — and it was really country," said Nielsen. "Because I had a 120-acre farm on top of Brindlee Mountain, my friends in Huntsville kept telling me that if I could receive other stations from my location, I could set up my own station and

and has moved its sales office from Brindlee Mountain to a more accessible location in Huntsville. The new sales office is in a former bank; employees use the two drive-through windows to hand out promotional items.

The station also airs more live remotes and provides extensive promotion for major events and organizations. In January, WRSA promoted the annual Induction and Awards Show of the Alabama Music Hall of Fame, held at Huntsville's Von Braun Civic Center; WRSA helped get the word out that major musical talent would be appearing locally.

A tight focus on the demographics of its target audience remains key to WRSA's marketing strategy. Despite Huntsville's relatively young population, the station targets the 35+ audience. In Nielsen's view, commercial diary services do not accurately report easy listening numbers, and he said WRSA research backs him up. He further asserts that the 55+ population is under-represented as a market, and that this age group accounts for about half of the total disposable income in the area, with average income of \$50,000 to \$75,000.

WRSA Account Executive Jeanne Wonders said, "About 34 percent of our listeners are in professional or managerial positions and hold college degrees. About 33 percent are in professional or managerial positions and hold high school diplomas, and another 30 percent are college graduates."

Nielsen said station consolidation is not widespread, but he expects to see more of it. His opinion is widely shared at other sta-

See WRSA, page 88 ▶

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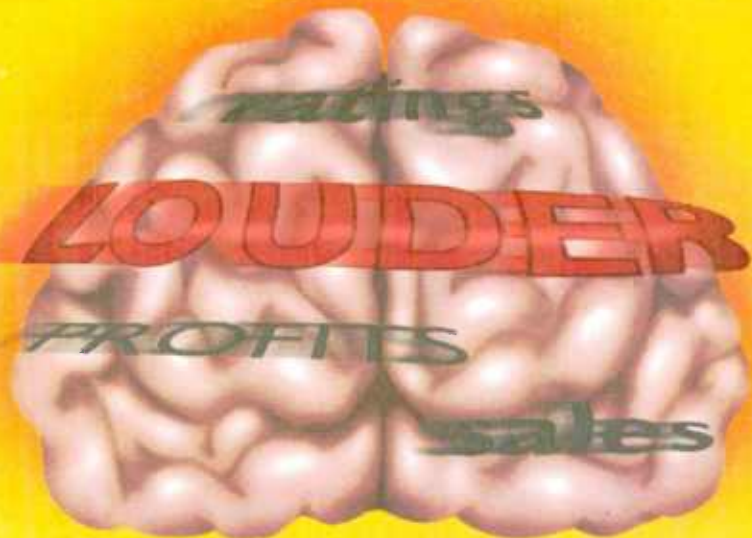
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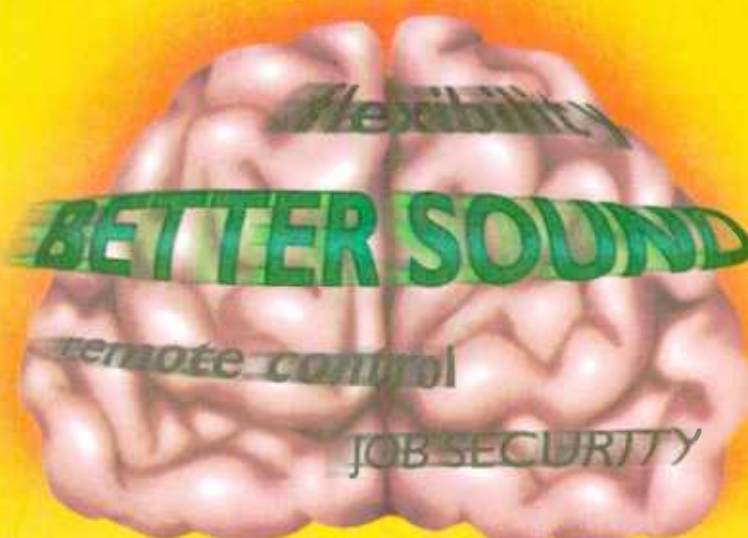
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World Radio History

PROMO POWER

Grow Your Own Great Jocks

Mark Lapidus

"There just aren't any great disc jockeys anymore!"

Program directors have been spewing this nonsense for years. It would be more truthful to say: "There just aren't that many great disc jockeys anymore who want to work for less than \$40,000 a year and are willing to move at their own expense."

It's sad that the more money companies spend acquiring radio stations, the less they wish to pay the people who can have the most impact on their sound. But we all must work with the cards we are dealt. Here are a few suggestions about talent development

garnered from many great program directors with whom I've worked.

Tape, tape, tape

Tape everything: Regardless of how many years folks have been on air, they can benefit from aircheck sessions. A common mistake is to tell a jock to record his show today so the tape can be critiqued tomorrow. This puts undue pressure on the DJ to perform and doesn't give you a typical show.

Have the disc jockeys aircheck themselves every time they're on-air. Get a shoe box. Fill it with 90-minute cassettes labeled by day and daypart. For example: On side

one, the DJ will record Monday's show from 10 a.m. to 2 p.m. The following Monday, he'll flip the tape over and record the second week. (The tape machine should only activate when the mic is on; your engineer can set this up). Have a dubbing deck ready in the jock lounge so that jocks can make copies whenever they like, but never allow them to take the original tapes out of the building.

A side benefit is that you'll have two weeks of your entire station on tape. This comes in handy anytime you have serious questions about what a personality may have said on the radio.

Jocks reluctant to record every show

are unconsciously telling you they have trouble with subjective critiques. This problem requires a long, somewhat painful private discussion regarding what it means to be a performer.

Session tips: All full-timers should spend at least 15 minutes per week going over a tape with the PD. To do less compromises both the PD and the jock. A one-on-one relationship with a true performer takes time to develop. Weekly meetings accelerate the process.

Begin by letting the DJ pick any tape they'd like to go over. Play a few breaks and let the jock critique herself first. She'll catch the most obvious stuff. This will permit the PD to concentrate on style and content. Always accentuate the positive. If the material is that terrible, you don't want a jock working with you in the first place! Agree on what needs improvement.

End on an up beat

In your "critique notebook" kept for that particular jock, make a note about what you'll both listen for in the next session. Be sure to leave everything on a high note. Never let a jock walk out of your office feeling unsure of his position. This will weaken on-air confidence and can only hurt your station.

Morning shows require special handling. If you're airing a high-profile morning show, you need a meeting every day, with perhaps an aircheck session every second or third day. Since these are generally the most talented players on your staff, they require higher maintenance.

Big staff syndrome: At many stations, I find that general managers and PDs often pretend they have bigger staffs than they really do. Face facts: Radio is a small business (and getting smaller). Many programmers act as if 20 full-time employees work at one station, when in fact, five or six full-time announcers is more accurate. In my view, this makes most "airstaff" meetings worthless, unless you're discussing major changes or want input as a group from your airstaff.

For the most part, communicate during one-on-one meetings, preferably before or after airchecks, or by telephone. Memos are almost always a bad idea, unless you must communicate a very broad concept or insert a note into an employment file. Instead, use your staff meetings for parties! Go bowling. Play softball. Pick a group activity in which your personalities can share friendship and common purpose.

Also, if you're not paying your part-timers to come to staff meetings, you're not being nice. You may also be violating the law if you require them to be there. Would you work for nothing?

Upward mobility: What are the goals of your DJs? Unless you're already a top station in a major market, that goal probably involves moving on and up. This is a great goal, because it means that your DJs will strive to improve each time they're on mic.

Don't pretend that your jocks will stay with you forever. Instead, create an atmosphere in which you're going to help them become the next Wolfman, Howard Stern or Don Imus.

You should be so lucky as to have one of those types of personalities work for you, if only for a little while!

■ ■ ■

Mark Lapidus has held positions as corporate vice president for marketing, program director, promotion director and DJ. For consultant services, contact him at (703) 764-3994 or send e-mail to lapidus@erols.com

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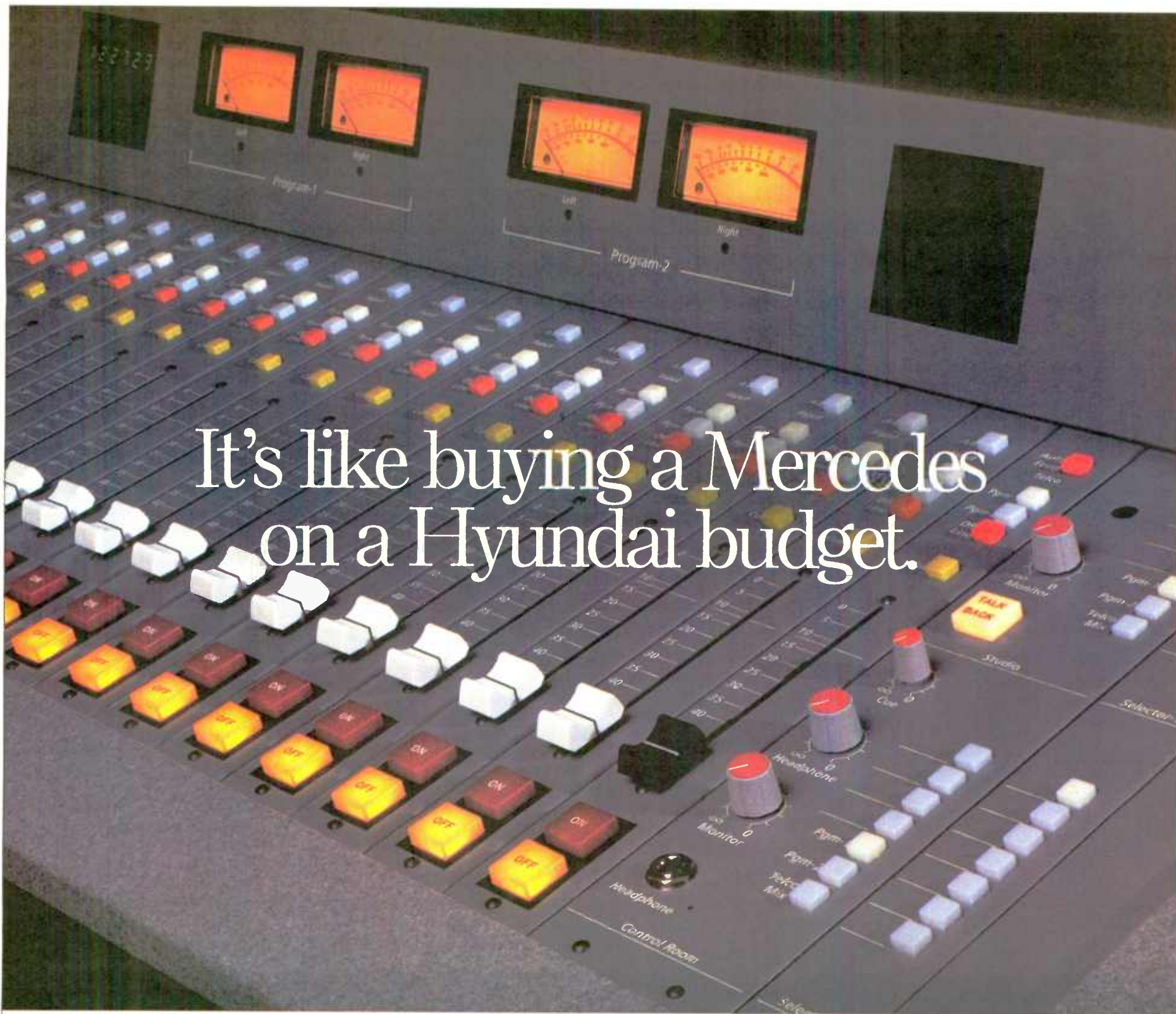
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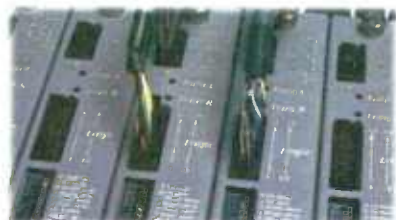
Now you can get the most prestigious name in radio consoles. For as little as \$7,000. How did we do it? It wasn't easy. We started with the most appropriate features for today's programming. And tapped years of industry expertise. But we didn't cut corners.

We've retained many high-end PR&E features that competitive consoles don't have. Like all electronic audio switching. An exclusive automatic telephone mix system. Gate-array logic control with built-in machine interfaces. And a UL-registered, rack-mounted, convection-cooled power supply. The result is a new standard in lower cost consoles.

For a brochure, call us at 619-438-3911, visit www.pre.com or e-mail sales@pre.com.



Quick-release latches allow instant tilt-up access for "extenderless" set-up of input modules. Release pins built into the hinges let you easily remove the meter panel completely.



Fool-proof connectors prevent accidental circuit damage. Each input, output and logic connection is separate, so removal of one won't disable other signals and functions.



Our proprietary gate array logic generates both module control and remote control of connected equipment.



Sealed, LED illuminated buttons are designed so you can remove the switch assembly without unsoldering, in case of a coffee spill.

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PACIFIC RESEARCH & ENGINEERING

Circle (86) On Reader Service Card

World Radio History

Study: Midday Outranks PM Drive

Chris Joaquim

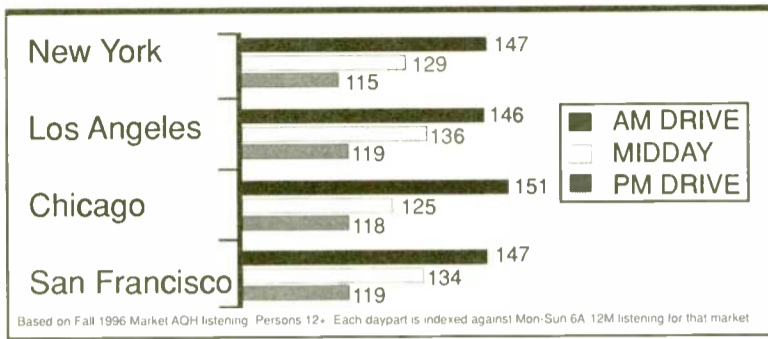
Contrary to popular belief, radio listening is higher during midday rather than afternoon drive, according to a recent study by Interep Research. An Interep official said, however, that advertisers should not shun afternoon drive.

Marla Pimer, Interep executive vice president and director of research, said, "This should not be seen as a reason to use middays instead of PM drive ... (it shows) that advertisers who insist on drive-only rotations are probably not aware that other dayparts can be as strong or stronger than the traditional drive-times."

Interep pointed to several trends that have affected traditional radio listenership patterns. These include

the growing use of "flex-time" by employers, the rising number of at-home workers, and the exodus to the suburbs putting more cars on the road and causing extended rush hours.

Sample Metros Daypart Analysis - Persons 12+



'Beautiful 97' Grows With Market

► WRSA, continued from page 84

tions. In fact, owners of radio station WDRM(FM) and its sister stations, WBHP(AM) and WHOS(AM), recently agreed to sell all assets to Osborn Communications of Greenwich, Conn., in a deal worth \$23 million.

Although Nielsen supports the idea of a free market in radio, he observes that multi-ownership may have a big impact on Arbitron ratings.

"Traditionally, Arbitron has been a far bigger enterprise than any individual radio station," he said. "Multiple owners will have increased influence, and by owning two or three stations in one market, their ratings will benefit."

"The independent stations will pay more on a per-station basis for the same services, and the smaller stations will pay more on a per-station basis for the same ratings. It'll have a big effect on programming in a market being manipulated by Arbitron."

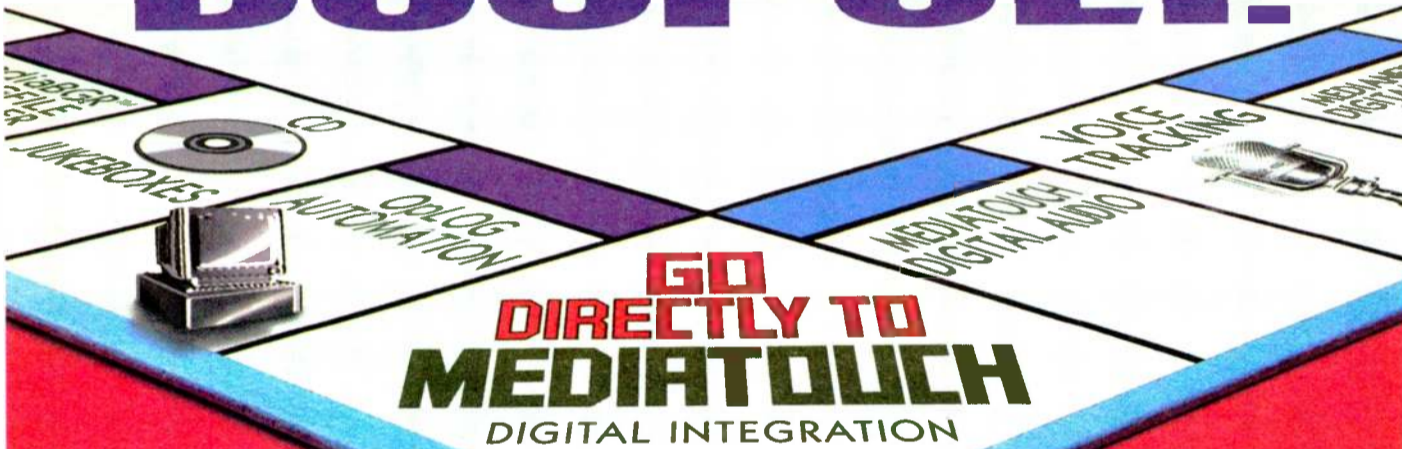


Arbitron Vice President of Communications Thomas F. Mocarisky, asked to reply to Nielsen's comments, said large groups might have more bargaining power than smaller customers when it comes to rates. But, he said, the size of a radio group or customer has no influence whatsoever on their Arbitron ratings.

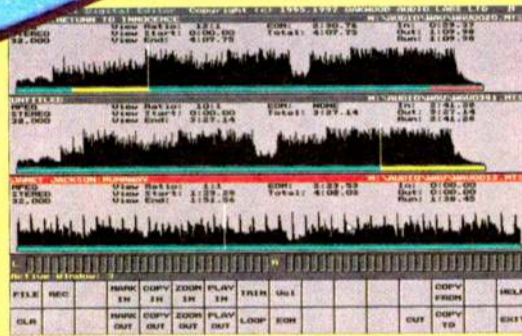


Claudia J. Tucker is a writer and editor for SCI Systems Inc., a Fortune 500 electronics manufacturing service provider in Huntsville. She also writes for several regional and trade magazines.

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Push Here For Quack

Don Imus isn't the only one putting ducks to good use in radio.

Lisa Dent, host of the morning show on Seattle's "Young Country," KYCW(FM), says she and her colleagues wanted to overcome that common listener complaint: "You don't give the time enough in the morning."



So from its first day in 1994, the morning crew has used a duck quack with time checks.

Dent figures the trick helps listeners to "hear" the time.

Dent shared the anecdote during a client conference call with Broadcast Programming's BP Consulting Group.

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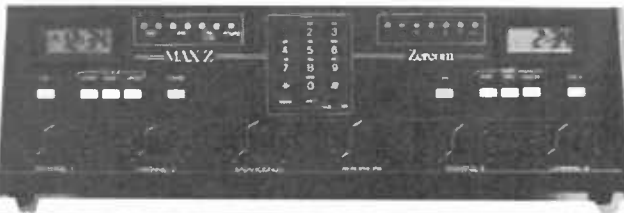
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Companies with new product announcements for Running Radio Station Services should send them to:
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Health Advice

Radio Healthline, consisting of eight one-minute voiced reports per month, is offered free to stations as a public service of the Baylor College of Medicine.



**BAYLOR
COLLEGE OF
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Each report contains two sound bites from Baylor College of Medicine specialists. The sound bites are placed at the end of each report, for easier lifting of clean actualities.

Stations can use Radio Healthline as it is provided, or use the script that accompanies each monthly cassette to produce their own stories.

A Spanish version of Radio Healthline also is available.

For information contact Steve Sievert at Baylor College of Medicine, (713) 798-7969; or circle **Reader Service 170**.

Competition

New York City music library producer Metro Music Productions is out with a volume of high-end production music, geared largely for broadcast.



Styles cover a broad range, from "funky street action and grungy speed metal" to classic sports themes. The collection, called "Competition," has 15 titles and 77 more edits and alternate mixes. Each title includes a :60 and :30 version, plus :10 or :15 edits. "This music," said a company spokesman, "is a lot of fun."

Metro has provided music for premier sporting events and broadcasters. Its client list includes ABC and CBS Sports, NFL, Films and ESPN.

For information, contact Metro in New York at (800) 697-7392 or circle **Reader Service 144**.

Solid Growth for Southern Gospel

After a year of significant growth, the Reach Satellite Network (RSN) thinks southern gospel music is poised to become the next hot format, a natural replacement not just for religious talk format stations, but oldies and country formats as well.

RSN offers its 24-hour satellite-delivered programming, "Solid Gospel," seven days a week.

Chief Executive Officer Jim Cumbee said the number of "Solid Gospel" affiliates grew 20 percent during 1996, contributing to the 90 percent total revenue growth for RSN during the same period. Cumbee said "Solid Gospel" airs on 110 affiliates across the country, with new affiliates coming from previously country- and oldies-formatted stations.

For information contact Jim Black at RSN, (800) 742-3969; or circle **Reader Service 118**.

For Your Health



Need a doctor? The National Association of Physician Broadcasters announced a new initiative to improve the quality of radio and television medical news by linking local broadcasters

with physician contacts in their areas.

Brian McDonough, M.D., medical reporter for Fox Broadcasting in Philadelphia and president of NAPB, said the Physician Broadcaster Outreach Program "makes it possible for (NAPB) to offer news directors local sources they can turn to for expert opinions on medical and health stories coming from wire services or other sources."

Depending on station need, broadcasters can ask the physicians for background information on a specific topic or to provide an on-air commentary.

The outreach program is funded through a grant from the NutraSweet Kelco Company.

For information contact Sandra Beckwith at NAPB, (716) 377-2768; or circle **Reader Service 117**.

Potential Success

New Dimensions Radio has established a joint venture with a new satellite network

See SERVICES, page 91 ►

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World Radio History

► SERVICES, continued from page 90 dedicated to programming about "life-affirming," personal growth and human potential issues.

The Wisdom Network audio channel features a block of New Dimensions Radio programming. Wisdom is owned by Turner Vision Inc., which is active in the satellite TV industry.



The new network will launch in the C-band satellite market.

For information contact Rose Holland at New Dimensions Radio, (707) 468-5215; or circle Reader Service 143.

Searching for Beauty

The Population Institute awarded its Global Media Award, recognizing the "Best Radio Series in the World," to The Hispanic Radio Network (HRN) for its daily women's series "Buscando la Belleza," or "Searching for Beauty."

The program targets its messages on family planning and reproductive health to Hispanics. The panel of judges that determined the award includes Nobel Peace Prize winner Dr. Norman Borlaug, and the executive president of Televisa, Miguel Aleman.



The president of HRN, Consuelo Luz, accepted the award during ceremonies held in Thailand

HRN programming airs seven days a week from coast to coast and in Puerto Rico, Mexico, Central America and South America.

For information contact Ava Gutierrez at HRN, (505) 984-0080; or circle Reader Service 169.

Baked to Perfection

Cool beats, sweeping strings and hard-charging action: It's all available in the newest addition to The Music Bakery production library.

The library, offering new releases on a bi-monthly basis.

The newest production music categories include "Orchestral Power," "Way Cool Tracks" and "Dramatic Action."

The Music Baker can be found on the World Wide Web at www.musicbakery.com. Free production music excerpts can be downloaded from the website.

For information contact Donna Gallaher at The Music Bakery, (800) 229-0313; or circle Reader Service 116.

Inspiration Via Satellite

Three stations recently signed onto the SkyLight Satellite Network, a ministry of Northwestern College in Minneapolis/St. Paul.

WSMR(FM), serving Sarasota-Bradenton, Fla., joined the network in December, 1996; KUYO(FM), in Evansville, Wyo., picked up a partial package of the UPI news service; and KOCR(AM), Joplin, Mo., went with Level II music programming.

For information contact Wayne Pederson at SkyLight, (612) 631-5000; or circle Reader Service 194.

A Personal Trainer For the Mind

A new format launched by ABC Radio Networks encourages mental and physical well-being, putting forth a blend of advice and ideas in segments similar to any hit music format.

Personal Achievement Radio has exclusive broadcast rights to motivational speakers from the Nightingale-Conant Corp. audio program library. Covert Bailey, Leo Buscaglia and Barbara De Angelis are among the well-known personalities heard

on Personal Achievement Radio. Content runs the gamut from success skills to nutrition and personal finance.



For information contact Kelley Chapman at ABC Radio Networks, (972) 776-4644; or circle Reader Service 142.

CountrySpotlight Start-up

A new on-line magazine, "Country-Spotlight" at www.countryspotlight.com is the third on-line format site from Electric Village.

Contributing to the new magazine are writers and staff members of "Country Song Roundup," including its editor, Shelton Ivany, who serves also as editor of "CountrySpotlight."

Features of the new magazine include country music news, CD reviews and interviews with sound clips. "CountrySpotlight" is updated every weekday.

For information contact John Simmons at (408) 477-4491; or circle Reader Service 220.

Musicians Speak on Politics

Mixing music and politics makes for great radio, or so hope the producers of AMPT Radio, a series of half-hour syndicated programs "dedicated to instilling political thought, discussion and activity" in its audience.

Musicians figure prominently in AMPT programming, behind the scenes and on the air. Former Nirvana bass player Krist Novoselic is executive producer of AMPT Radio. A recent program included reflections by Dave Dederer of The Presidents of the United States of America.

Seattle's KNDD(FM) took on a 13-week run of AMPT Radio, airing a "test run" of the show Sunday mornings at 7:30. "It may take a while for stations and advertisers to realize how hungry our audience is for this blend of entertainment and information," said AMPT Producer Jim Haviland.

For information contact Jim Haviland at AMPT Radio, (206) 807-0572; or circle Reader Service 195.

Positive Christian Alternative

Tired of moody alternative rock singers who drone on, complaining about their lot in life? "CrossRoad" may be the answer.

Targeted to Generation X, "CrossRoad" is a one-hour show of Christian Alternative/New Rock, for weekend programming. Featured artists include Jars of Clay, DC Talk and Plankeye.

"CrossRoad" co-host David Williams works with at-risk youth through the Dayton, Ohio, police force. He specializes in the area of gangs and the occult. Jimmie Williams, a 15-year radio industry veteran, co-hosts.

The program is digitally produced and available on CD, DAT and analog tape.

For information contact Jimmie Floyd at CrossRoad, (888) 976-2397; or circle Reader Service 168.

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To Webcast or Not to Webcast

Alan Haber

The question for today, kiddies, is: "What do we call it when we put our signal on the Web?"

The answer seems to be, "Your guess is as good as mine." Put 10 or 15 people in a room (don't forget the chips, dip and pop), ask 'em the question, and you'll likely get 10 or 15 different answers.

Even at this stage of the migration of radio stations to the Web, it's still early going, and every expert in cyber-town has his pet name for "it." "It" is putting your station's signal on the Web.

Is it *cybercasting*? Is it *multicasting*?

Is it *bitcasting*? Is it important to have a name at all? Trying to decide can make you a bit dizzy. Until everybody agrees on one term, I vote for *fish-net casting*. This way we can catch a couplea trout while we decide, and have a nice dinner. (Anyone volunteer for cleaning the little guys?)

While everybody plays the give-it-a-name game, I wanted to know if there's a danger of people forgetting why radio stations are sending their signals over the Internet in the first place. I turned to Peggy Miles, president of Intervox Communications, moderator of the Webcasting mailing list on the Internet, and all-around 'net guru for the answer.

"There's always a danger of confusion," she said. "In fact, the one point that you do want to standardize with the term is that when you go to an advertising agency or when you are talking to people, they understand the concept (and) can visualize it. They can hear it in their head."

And isn't that the whole point? What do you loyal Haberspacers think?

Here at the ever-musical, ever-sym-

phonic global Haberspace headquarters, we're not only batting terms around, we're getting a healthy dose of culture (or *cultcha*, as we useta say in New Yawk).

Yup, we've blocked out all the all-polka-all-the-time radio stations and hidden the Slim Whitman records in an effort to get cultured. Now we can listen to the symphonic sounds of Mozart and Beethoven instead of Jagger and Richards while we surf and type.

This month, we've got two — count 'em, *two* — classical station sites for your feasting pleasure. First, WKSU-FM (www.wksu.com), Ohio learnatorium Kent State University's public radio network. The National Public Radio affiliate is beaming its signal onto the Web via RealAudio 3.0 and StreamWorks. The Masters sound especially potent via RA 3.0. WKSU, in fact, has one of the best stereo signals I've heard on the 'net.

The WKSU site is well-designed and easy to negotiate (especially the "Week at a Glance" program schedule). Check



out the station's "Quarterly Edition" newsletter for the latest station info. Don't miss the various audio-on-demand offerings. In short, don't miss WKSU on the 'net.

Big Apple classical fixture WQXR-FM is the second classical site on this month's cyber-plate.

It broadcasts on the 'net in RealAudio 2.0. You'll find it at www.classicalinsites.com/wqxr/. The site seems to be nothing more than a placeholder right now, but more info is on the way, according to the station's program hosts, peruse the program schedule and check out notes on upcoming special events.

Rocky Mountain 'Hi!'

From classical, we shift over to kissin' cousin rock. That's what Colorado Springs, Colorado rocker K1LO(FM) is pumpin' out. The station has a neat-lookin' site you can find at www.kilo943.com/default.htm.

Surfers can order station clothing on line, enter contests, see music news, check out the hot songs the station is playing, run their eyes over a list of station events, travel the slopes via ski reports, and take a gander at a list of area bars and restaurants. Neat and nifty.

Back at The Ranch ...

Attention, ranch hands (and ranch feet): Kansas City country music station WDAF(AM)'s website, located at www.wdaf.com, is pretty cool. It's called The Ranch, and you can hang out at it or listen to the station (in RealAudio) any time of the day or night (these Web things are open 24-7, ya know).

The country-ish home page is kinda cool. From here, you can link to a range of country-related sites from country dancing to country recording artists. You can check out the latest agri-business info, and take a peek into the bunkhouse for pix of the on-air staff.

This site is nicely laid out and gets the job done. Visit soon, y' heah?

Nice prospect(ing)

Alaska is a pretty cool part of the country. You could fly there next chance y'get, or you could do the next best thing and pay a virtual visit to the site of Anchorage CHR radio station KGOT(FM), found at www.alaskanet.com/kgot/.

Here, folks can take a gander at nifty cartoon drawings of the on-air staff, check out the latest tunes beaming outta the station's studios, and say what they think (if they think they can say it, that is). In other words, while they're on line, folks can jot down their favorite tunes and provide feedback to the station, 'natch.

Looking good

Time to get back to the cyber-grind. Don't forget to let me know what your station is doing in cyberspace by e-mailing me at zoogang@earthlink.net. Time to fire up the Stones ... uh, I mean Mozart's "Stones in A Minor"!

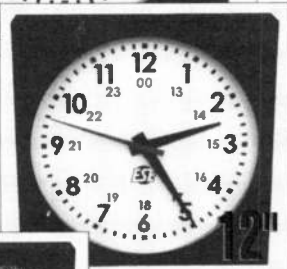
Alan Haber's column appears regularly. He promises that Poochy the Cyber-Mutt will make a return appearance soon, along with Poochy's girlfriend.

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renowned doctors, scientists and health care experts from the Johns Hopkins Medical Institutions is available every weekday **FREE OF CHARGE**. For more information, contact Jack Sheehan at 410-955-2877 or 1-800-MED-RADIO.

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World Radio History

Imagine Those Flying Cherries

Gordon Mason

Los Angeles has long been regarded as having more talented professional creatives per square foot than almost any other advertising center in the country. Over the past 18 months, we at the Southern California Broadcasters Association have interviewed a number of them about their involvement in highly successful radio campaigns such as BMW Dealers of California, Ralphs and Glendale Federal Bank. We compiled those comments for our statewide newsletter, and have agreed to excerpt them here for RW.

The voices belong to Jordin Mendelsohn, executive vice president and creative director of Mendelsohn/Zien; Stan Kaplan, creative director at Davis, Ball & Colomatto; David Lubars, vice president, general manager and creative director, BBDO/L.A.; Claudia Caplan, associate creative director, Mendelsohn/Zien; and April Winchell, president and owner of Radio Savant. We asked why they write radio and what they see as the medium's best qualities.

Writing radio

Stan Kaplan: I have more regard for someone who's written a great radio spot than a great TV spot, in the sense that I may like them both. He's not counting on a director's visual take on a situation and how the art director laid it out ... all these other people who are helping you collaborate to make that spot work. A writer in radio is out there by himself — live or die — with his words and his characterization of the scene, his dialogue, his painting of the picture.

Claudia Caplan: For a long time, it



Stan Kaplan

seemed that radio had become the poor stepchild of the creative department. Copywriters felt they were judged on their print advertising; television, of course, had more glitz and glamour and money associated with it, and radio became the purview of juniors or it was sent out to a radio specialist like the (Dick Orkin's) Radio Ranch.

I think that has really started to turn around. I think that creative people, copywriters in particular, have begun to realize that radio is a medium that they can control. Unlike television, when they write something, they can cast it, they can direct the talent and they can really realize their vision in a very singular way.

April Winchell: When I first got into advertising, I was amazed that radio was so unpopular with people to create. Copywriters hated doing it. "It's very hard (they'd say), and if you don't have a specific talent — or desire is really a better word — to create radio, it can be very intimidat-



Jordin Mendelsohn

ing." I was amazed by that because it was the only part of the advertising that I really identified with and was passionate about.

I thought, well, here's a 60-second format. You've got twice as much time as you've got on television. People say, "Yeah, but you can't show pictures." Well, radio's the most visual medium in the world.

Jordin Mendelsohn: In print, you have copy, and you have visuals. In television, you have copy and you have visuals and you have music. In radio, you have copy. That's pretty much all you've got. I enjoy it. And when we sit down with the creative department here at Mendelsohn/Zien, I say the same thing as I give the director for print or radio or television. Here's the medium, here's the ramifications, here's the difficulties. I want to hit it outside the box.

Painting pictures

Stan Kaplan: Imagination is everything in radio. You think of that classic Radio Advertising Bureau thing where a thousand cherries come flying in by helicopter. You can create this sound. You can create this whole visual imagery instantly and cheaply with sound effects.

"The sky's the limit" is the first thing to keep in mind. You can create an entire world on radio and fake it, basically. And that's the great opportunity of it. The fun. So ... think big. There's nothing that you can't do when you're painting a picture for people with radio.

April Winchell: I think what it comes down to is what you're passionate about. Ever since I was a little girl, I've been very passionate about the spoken word. I used to sit on my floor as a kid and listen to albums of "The Jack Benny Show" and old recordings that my dad had and Shelly Berman records. I'd sit there and see these things clearly in my head. And that's just what I wanted to create. I wanted to paint pictures that people could enjoy.

Claudia Caplan: I think the classic example of radio's flexibility is the Stan Freberg example of building the world's largest ice cream sundae in Lake Michigan. You can make people believe anything on the radio. The key is to remember that radio is a highly visible medium. And to remember that you are, in fact, making pictures for people.

April Winchell: The bizarre thing about radio is it's the most flexible medium in the world. You can do anything you want and create all kinds of visuals and music and sounds. You can transport people to amazing places. We try to make it blend in — we throw sappy music behind it so we don't stick out. We don't want to be annoying, we don't want to be invasive. The truth is, you

have to be all of those things. You have to be invasive. Someone's driving in their car on the 405 and they're stuck in traffic. You have to say, "Hey, listen to me!"

Jordin Mendelsohn: Radio is very inexpensive to create for. The beauty of radio is, if you want to have a gigantic tomato rolling through San Francisco, crushing buildings, well that would cost you tens of millions of dollars in a visual medium. You want to do it on radio, that will cost you whatever a radio spot costs. The only limitation there is on your imagination and what you can conjure up. But you can accomplish anything on radio and that's something that you just can't do in the visual media.

■■■

Gordon Mason is president of the Southern California Broadcasters Association. Reach him at (213) 938-3100.

An Ammeter Primer

► FEEDLINE, continued from page 80

One of the biggest advantages of this type of RF ammeter is that there is no direct connection to the circuit under test. This has a twofold effect: one, it does not introduce a new component into the circuit's impedance; and two, the propensity for damage by lightning strikes and static discharges is decreased by a large factor.

Another advantage: With a single pickup transformer, you can use a meter with multiple, switchable scales. Many radio stations operate with significantly different power levels by day and night. Some that operate with similar power levels operate different directional patterns, in which the current in a particular element may be large in one configuration and very small in another. Measuring such diverse values of current with a meter using a single scale is difficult. Using a multiple, switchable scale toroidal RF ammeter, you can measure a current of 25 amperes accurately on one scale, while measuring a current of less than '5 amperes on another. Optional relay switching within the ammeter allows remote base current metering on the appropriate scale. This can be tied into the pattern switching logic of the array and the correct scale will always be selected for the current mode of operation.

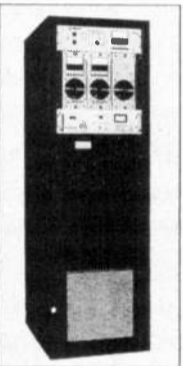
One manufacturer now offers a toroidal RF ammeter package on an insulated carry-around, plug-in frame. This package offers the same advantages as the plug-in thermocouple RF ammeter. It allows the meter to be stored in the controlled environment of the transmitter building, out of harm's way. Also, the user can read base current ratios much more accurately using a single meter than multiple meters with varying amounts of error in their calibration.

Perhaps the only disadvantage to toroidal RF ammeter are their cost. They are more expensive than their thermocouple counterparts. In the long term, however, their durability, stability and accuracy will more than compensate for their higher initial cost. In some cases where multiple scales are needed to accommodate different patterns or current values, a single, switchable-scale toroidal meter may be less expensive than two thermocouple meters with all the requisite switching hardware.

■■■

This is one in a series of articles about AM antenna systems. The previous part appeared in the Feb. 19 RW.

Cris Alexander is director of engineering for Crawford Broadcasting in Dallas. Contact him at (214) 445-1713 or via e-mail at 76440.1670@compuserve.com



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COLE'S LAW

The Telecom Act, One Year Later

Harry Cole

The Telecommunications Act of 1996 has now been a part of our lives for more than a year. Are we better off because of it?

First, remember that the Act immunized all broadcast licenses from any comparative renewal challenges. That change does not seem to have impressed many folks, but it made everybody's license infinitely more secure than had been the case since 1934. Prior to 1996, everybody's license was automatically up for grabs at renewal time. Any new applicant could saunter on it, plunk down a filing fee, submit a construction permit application for your frequency, and be entitled to a full comparative hearing against you, the person who has operated on that frequency for eons. While relatively few challenges were filed and fewer still succeeded, the threat always existed.

But the 1996 Act did away with that threat. Now, about the only way you can lose your license is to commit some truly heinous criminal (or at least quasi-criminal) act.

As we noted in this column last year, this change has had an unheralded effect. As far as we can see, licensees are no longer under any direct or indirect FCC compulsion to air non-entertainment programming of any sort. While you are certainly free to continue your non-entertainment programming schedule if you like, that's a matter of your own choosing.

The Act also ordered the FCC to wrap up its RF rule making, concerning the establishment of standards for human exposure to RF, by last August. The FCC complied, but with a cute little bureaucratic sidestep that enabled it to avoid putting any new RF standards in effect. While the commission has given us an idea of what those new standards might be, we are all still subject to the old standards for the time being. There remains at least a chance that, on reconsideration, the "new" standards that have been previewed for us may change. So this aspect of the 1996 Act was certainly not bad for broadcasters, at least not yet.

But the big change wrought by the Act

involved ownership limits. Opinions on this vary about as much as those of the O.J. jurors.

Huge groups

By relaxing ownership limits, Congress encouraged the formation of humongous broadcast groups. Sure enough, a bunch of players have heeded that call and gone on unprecedented acquisition sprees. Now we hear of groups owning 100 or more stations. With the relaxation of local ownership (formerly known as "duopoly") rules, we also find five, six or more stations under

Now mind you, Team Cole's Law has no real bone to pick with Big Group Operators. They are just doing what comes naturally.

common control of one form or another in a given market.

This is good news if you are one of the entities motivated (and financially able) to acquire a gazillion stations. Even if you don't belong to that relatively elite club, it is also good news if you have a station that one of the club members wants to buy. Prices for stations have risen, sharply in many cases, as demand increases while supply remains static.

But consolidation has meant bad news for smaller operators who don't want to sell, and now face competition from mega-group operators. Those big players can field a team of numerous stations against the little guy with a stand-alone or, at most, a couple of stations in the same market. The competitive disadvantages to the little guy are daunting, and may prove insurmountable.

If competition does grind the little guys out, we are left with markets dominated by Big Group Operators, markets that discourage, if not effectively prevent, entry by smaller, independent operators.

Now mind you, Team Cole's Law has no real bone to pick with Big Group Operators. They are just doing what comes naturally. But we are concerned about the future of broadcast programming. Historically, innovation has tended to come from smaller, independent operators who were forced, because of their competitive disadvantages, to come up with better ways to attract audiences. If the Big Group Operators have, by buying control of their market, eliminated the need to attract audiences through creativity, where will new ideas come from?

Programming innovation has been a hallmark of U.S. radio — but then, so have local ownership limitations. It remains to be seen whether the demise of the latter will lead to the demise of the former.

Oddly, the Department of Justice may play some role in this process. As you have read in *RW*, DOJ has asserted its interest in a number of the larger station deals on the basis of potential anti-trust concerns. Obviously, if a single licensee exercises improper or inappropriate monopoly (or near-monopoly) control over a given market, anti-trust concerns rear up.

So far, though, DOJ generally has allowed the deals it has considered. In a couple of cases it has required some modifications, but by and large no deals have been completely trashed by DOJ.

'Format monopoly'?

Which brings us to programming and innovation. It appears that, in some instances, DOJ has indicated concern not just about the raw number of stations to be acquired, or the raw audience or revenues numbers. Apparently, DOJ has also expressed some concern about acquisition by a single licensee of control over all the stations in a given format in a given market — a kind of local programming or format monopoly.

This focus is reassuring, if somewhat problematical. It suggests that DOJ is looking at the radio industry at least in

part through the lens of programming. As a practical matter, programming is the primary commodity that stations offer their audiences. It is not inappropriate for DOJ to consider that aspect of the business in its assessment of major deals.

But such consideration raises vast problems of definition. How can or should the government define any particular format for purposes of anti-trust analysis? If you define a format by its target audience, how do you do that with any reliability?

Perhaps this is where the innovators of the future may find their niche: developing programming to attract various audience segments not already served, or possibly developing programming aimed at disparate segments now thought to be distinct and unrelated. While the goal of such exercises may just be to avoid anti-trust problems, the result may be new and interesting programming. And if that's where we can look for such programming, so be it.

In any event, like it or not, the Telecommunications Act of 1996 is with us. Happy birthday.

■ ■ ■

Harry Cole is a principal in the Washington-based law firm of Bechtel & Cole, Chartered. Reach him at (202) 833-4190 or on the Internet at coleslaw@erols.com

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See Page 99

Radio World

Resource for Radio Production and Recording

March 19, 1997

DART Sharp at Noise Elimination

Read G. Burgan

Digitally restoring old phonograph records requires at least two tools: An impulsive noise filter to remove pops and clicks, and a broadband noise removal filter to remove surface noise.

Tracer Technologies was one of the first companies to produce inexpensive PC-based software for cleaning up old records with its DART (Digital Audio Restoration Technology). In its initial version, it had a pop and click filter. Now Tracer has introduced DartPro, adding a long-needed broadband noise removal tool.

The pick to de-click

I was an unabashed fan of the original DART software. For my money, its DeClick is still one of the most effective PC-based tools on the market. DartPro

uses the same basic pop/click filter, but with an improved interface that is easier to use than the original.

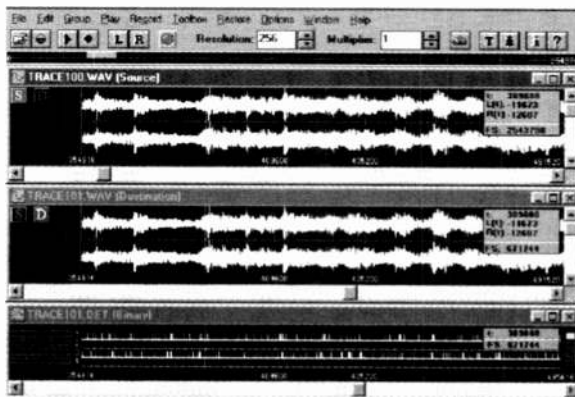
It includes a preview function, as does the new broadband noise reduction tool. Tracer gives you the option of setting the impulsive disturbance filter for either music or voice-with-music, giving you the flexibility to deal with most any kind of material.

No pop and click filter will remove all pops and clicks, but DartPro will remove about as many as is humanly — er, digitally — possible.

Regardless of whose noise reduction software I use, I often find myself coming back to DartPro to see if it will remove a few more pops and clicks without disturbing the rest of

the sound. It often does.

I like the way the DeClick gives you a report of the number of interventions



DartPro Main Screen

after it completes the processing of a file. DartPro also allows you to compare the new and old files to see just how much of the actual sound file is being affected, if at all.

DartPro actually gives you two options for reducing broadband noise: DeNoise and DeHiss. If you are in a hurry, DeHiss may be all that you need.

DeNoise and DeHiss

DeHiss is based on a standard noise model developed by Tracer to deal with the kinds of noise associated with vinyl and tape. Both DeHiss and DeNoise allow you to adjust several factors affecting the noise reduction, including Gain/Weight, Smoothing Range, Frequency Carving, Frame Size and Overlay.

The difference between DeHiss and

DeNoise is that DeNoise allows you to sample a noisy portion of your sound file and create your own custom sample that DartPro will then use to remove the noise. This takes a little time. If you want to be sure that the noise you have is representative of the whole album, you may be obliged to take several samples and test each against a section of the record.

Theoretically, DeNoise should give you a better result, because it is an actual sample of real noise in your sound file. However, vinyl noise is a bit tricky, and at times I found that the DeHiss actually seemed to do a slightly better job than DeNoise. Tracer has designed the DeHiss tool to model effectively the kinds of random noise that can characterize a vinyl recording.

The bottom line is that either of these broadband noise reduction tools will effectively remove much — and in many cases all — of the noise associated with vinyl and other kinds of files. Typically, I found that DeNoise removed at least 30 dB of noise in its "normal" setting. Setting the tool more aggressively can remove more noise, but at some point you will begin to affect the quality of the sound file. DeNoise and DeHiss work well and are easy to use.

DartPro also contains a number of other digital audio processing tools including low-pass, high-pass, bandstop, band-pass and notch filters and a nine-band graphic equalizer. These tools are all easy to use, although some are fairly rudimentary in design and could use some additional features.

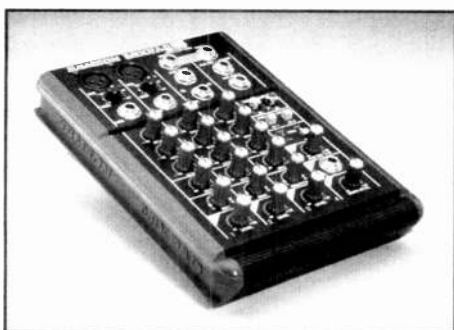
The notch filter, for example, does not allow you to adjust the depth of the notch cut. The BandStop filter gives you only three choices of attenuation: 20, 40

See DART, page 97 ▶

SHORT TAKE

Samson Shrinks Mixpad Mixer Even Further

Perhaps the current generation of "small" mixers are not small enough for your tastes. Maybe you are simply short of space and want a mixer that can squeeze into that last 7-inch gap in the remote van. Or maybe you really desire a small, battery-operated mixer for some quickie field production to do wraps.



Step up and meet the Mixpad 4 from Samson Technologies — less than 2 pounds, yet quite a good performer.

This little mixer handles one stereo input (a CD or portable stereo ENG deck) and two mono mic/line inputs. Surprising features found on the Mixpad 4 include mic trimmer pots, three-band EQ on all inputs, phantom power and an Aux Send for feeding a reverb or a phone interface. The Aux Return is stereo.

Constant-level panpots on all input faders allow hard panning of mics to feed a DAT, MD or cassette recorder. The Mixpad 4 runs on an external AC power supply or three 9V batteries. Battery life is rated at 12 hours.

Bandwidth on the Mixpad 4 scopes out to an astounding 5 Hz - 63 kHz, with 110 dB dynamic range and balanced

inputs and outputs. There is a surprising amount of stuff going on in this mixer, not much larger than the paperback copy of Roget's Thesaurus you never opened in college.

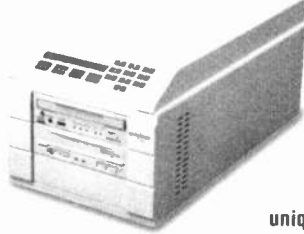
Suggested price of the Mixpad 4 is \$219.99. For information, contact Samson Technologies at (516) 364-2244 or circle Reader Service 107.

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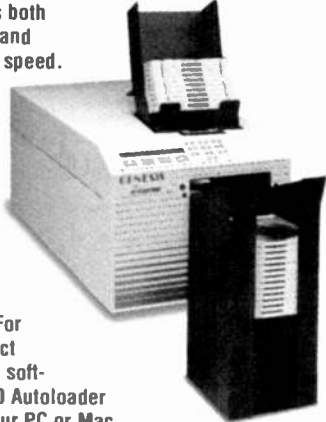
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World Radio History

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PRODUCER'S FILE

Sennheiser Redesigns Popular Mic

Ty Ford

The Sennheiser MD 421 is no longer being made. It has been replaced by the MD 421 II at the same price, \$485.

There was no funeral. I missed the announcement of the retirement ceremony.

You can, nonetheless, mark it on your calendar as a milestone event in professional audio. How do you replace a mic as ubiquitous as the Sennheiser 421? I would imagine that this thought bounced around Sennheiser quite a bit before they

actually made the move.

The short of it: The 421 II is brighter, has a very slightly extended low-end response and is about half an inch shorter than the original model.

According to Sennheiser's Greg Beebe, the coils of the new 421 II are made of lower-mass aluminum rather than copper. Less mass produces better transient response and increased high-frequency response. The new version has wider resonator/diaphragm contact (about 3/4-inch versus 1/2-inch on the original). That additional contact also results in an accentuation of the high frequencies.

The new neodymium magnet was chosen for its tight temperature coefficient, ensuring constant gauss and operation across a wide range of ambient operating temperatures.

The original version has a wide humbucking coil. The new version is more narrow, but has more strands and is a little taller. A lead slug is attached to the new capsule, which, according to Beebe, adds mass and cuts down on handling noise.

I will miss the silver embossed name across the front of the mic, but because the two are so similar in design, the difference will help you



The New 421 II From Sennheiser

identify them quickly.

Although the published specifications of the two mics are virtually identical, the individual frequency response charts tell a different story. Whereas my original 421 is up 6 dB from 1 kHz to 4 kHz, the 421 II is up 8 dB. My original 421 was down 6 dB at 50 Hz, while the 421 II was down only 4 dB. My overall reaction in A/B'ing the two: Relative to the 421 II, the original 421 sounds like it has a blanket hung in front of it.

The change in frequency response affects the mic's handling of the human voice. The original 421 seems darker and more focused on sounds from the back of the throat, while the 421 II seems more suited for sounds from the front of the mouth and from the facial mask. Like its predecessor, the 421 II has a five-position roll-off EQ collar at the rear of the mic.

Mounting tension

The new, optional MZS 421 shock mount clip (\$50) may quiet the perennial objections about the standard — but hard to wrangle — 421 clip. The MZS 421 is a lot easier to work with than the standard clip. The MZS 421 has a slot in its base, into which the standard clip slides. After that, the mic slides right into the suspension mount

You can mark it on your calendar as a milestone event in professional audio.

and is snugged by the rubber bands of the mount and the metal shoe that slides into the slot in the bottom of the mic itself.

Seven years ago, when I got my first DAW, I had to stop using my MD 421 because positioning the mic within several feet of the computer monitor turned the mic into a "noise antenna." It picked up a substantial amount of hash radiated from the monitor. I am happy to say I have a new, more environmentally friendly computer monitor. Both the original 421 and the 421 II could be positioned to pick up some noise from the computer monitor, but far less than with the previous model.

Conclusions

The only caveat I have about the new 421 II is that its brightness may result in sibilance. Using the open-cell foam pop filter suggested by Sennheiser will

See MIC, page 102 ▶

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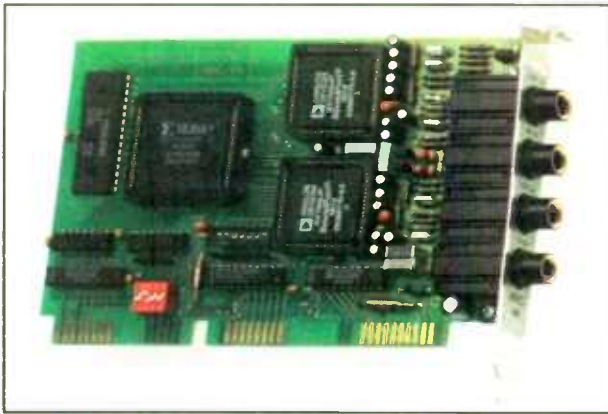
SHORT TAKE

Harmonica Titan Unveils ARC 44 Multitrack

If you have thought of Hohner as a company that only made harmonicas, the company is about to take you to a new level.

The Hohner Midia division of the harmonica giant has released a hardware/software package called ARC 44. This is an eight-track digital recording and editing system consisting of the ARC 44 soundcard with four high-end analog inputs and outputs and a specialized version of Samplitude multitrack software from the German company SEK'D.

ARC 44 allows simultaneous recording of four tracks while playing back eight. Several sound files can be recorded at the same time, much like an analog



ARC 44 Soundcard for PC

multitrack recorder. Editing is non-destructive with full Cut, Copy and Insert capabilities and 100-level Undo. Real-time scrubbing is possible in Samplitude and has been carried over into ARC 44. Crossfades within a single track are also possible.

Screens include windows for tracking, mixing and for EQ and compression levels. Real-time rubberbands can be dragged on the Track screen for mix control.

Three features in ARC 44

make it stand out. A De-clipper cleans up distorted audio, even if the recording itself was clipped. Built-in Room Simulation is included; it generates reverbs and emulates live spaces. Finally, ARC 44 is capable of MPEG compression and decompression on a standard 486 minimum PC.

Minimum requirements of the computer system also include 16 MB RAM, Windows 95 or NT and at least a 1 GB hard drive.

Watch for a review to come soon in *RW*. To find out more, contact Hohner Midia at (707) 578-2023 or circle Reader Service 135.

Dart Pro Software

► DART, continued from page 95

or 80 dB. However, each of these tools works, and together they provide enough flexibility to clean up and equalize almost any sound file.

Other functions allow you to fade in and out and crossfade.

Tracer has included a spectrum analysis screen in DartPro. I find applying spectrum analysis to a sound file indispensable in determining what tools to use and then testing how well the particular tool has worked.

DartPro's spectrum analysis screen does not provide enough useful information to be of much help. It does not annotate either the dB range or the frequency components of the signal being analyzed. Including a spectrum analysis function is a step in the right direction, but this one needs a bit more improvement before it becomes really useful.

For next time ...

My DartPro wish list for their next version contains a few other items. One would be the ability of the screen to scroll when playing a sound file.

Another would be a true Undo function. The program comes with a default limit of 40,000 bytes. Although this can be changed, the bottom line is this: If you do not like an edit, you may well have to scrap all of your work to that point and start over.

Finally, I would like to see a "Preview Cut" function that would allow you to hear what the sound file will sound like when you manually cut a pop or click that the filter was not able to remove.

DartPro is an effective way to remove both impulsive and broadband noise from vinyl and other recordings. It works well and is easy to use.

DartPro can be purchased direct from Tracer Technologies for \$399. It requires an IBM-compatible PC with at least a 486DX processor, Windows, a soundcard and a hard drive large enough to handle the kinds of sound files you will be using.

For information, contact Tracer Technologies in Pennsylvania at (717) 843-5833, visit their website at www.tracertek.com or circle Reader Service 161.

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Caig Electronic Lubricant

Caig Laboratories now offers CaiLube MCL, a new lubricant intended for electronic components.

The "MCL" stands for Moving Contact Lubricant, making CaiLube ideal for slide and rotary switches, linear faders, potentiometers and any component requiring a sliding contact.

Caig also manufactures CaiLube paste lubricants for electrical and mechanical applications. These variously contain



quartz, copper or graphite compounds intended to break up oxides in contacts, collector ring assemblies and sockets. The company's line of ProGold and DeoxIT lubricants are widely used in pro audio and broadcast engineering. For information, contact Caig Laboratories at (619) 451-1799 or circle Reader Service 131.

MediaFORM CD Copier

The new CD2CD Manual CD-Recordable Copier from MediaFORM offers one-button cloning of CD titles.

The CD2CD copier is based around MediaFORM's smart controller, with which the user can identify and copy a 74-minute CD-R in 18 minutes without first having to transfer data to a hard drive. A track extraction feature allows tracks from various discs to be mixed and



recorded for customized applications.

The 22-pound CD2CD handles many complex formats, including Red Book, CD-I, and Mixed Mode. It is expandable and can be tied to a DAT drive for audio flexibility, or a JAZ drive for greater data handling potential. An additional write drive can be added to double the copying capacity. Separate read and write drives support both 2X and 4X recording. The unit is priced at \$3,995.

For information, contact MediaFORM at (610) 458-9200 or circle Reader Service 183.

Z-Systems Digital Router

Aptly named, the z-8.8 Digital Detangler is a combination product from Z-Systems Audio Engineering.



The Detangler combines patchbay router, distribution amplifier and format converter into one box for users of more than one digital audio device requiring fast reconfiguration of their systems. Eight digital audio sources and eight destinations may be connected to the z-8.8. The user can reconfigure the router simply by adjusting two knobs on the front panel.

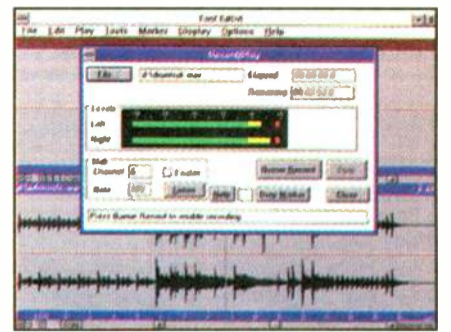
The Digital Detangler is a fully asynchronous device, supporting multiple sample rates simultaneously. The device allows the user to save and recall up to 80 routing schemes as needed.

Z-Systems can custom-design a Detangler for specific purposes and I/O formats, including AES/EBU, S/PDIF and Optical, or any combination of all. Any source can drive any destination, regardless of format.

For information, contact Z-Systems at (352) 371-0990 or circle Reader Service 108.

Digital Audio FastEddIT

Digital Audio Labs has moved Windows wave editing to a new level with FastEddIT, the successor to the earlier "Fast Eddie" Windows wavefile editor. FastEddIT is a two-track editor that works with any sound card but is optimized to work with the company's CardD Plus. It offers non-destructive editing, fast cut-and-paste commands,



overlays and fades plus varispeed pitch-shifting. Scrub capability via mouse is also possible when used with the CardD Plus.

A bonus program included with FastEddIT is a sound catalog "wall of carts" emulator that can be fired by hot-key, point-and-click from a mouse or by a MIDI keyboard or sequencer. FastEddIT is from Minnetonka Software and distributed by Digital Audio Labs.

For information, contact Digital Audio Labs at (612) 559-9098 or circle Reader Service 209.

Svetlana Pentode

Ideal for preamp sections, the EF86/6267 small-signal pentode for audio is now available from tube manufacturer Svetlana.

The high voltage gain achieved with the EF86 in pentode connection is >400, minimizing complexity and cost. Low distortion in triode mode means the tube functions well as a line amplifier, with a voltage gain of about 25.

The EF86 has low microphonic behavior and low noise characteristics for use as condenser mic internal amplifiers. Internal shielding eliminates the need for a tube shield. Improved vacuum processing and a barium getter assembly assure a high vacuum inside the EF86.

For information, contact Svetlana marketing at (415) 233-0429 or circle Reader Service 132.

C Audio Amplification

From England comes SRX amplification from C Audio.

Using a process called AMPSAP (Advanced Multitasking Primary Signal Access Port), the SRX amplifier line allows access to all the signals that may need monitoring or manipulation.



Fitting tuning networks, limiters or crossovers to the SRX motherboard allows unprecedented flexibility in the control of the audio. SRX amplifiers are available in 700, 920 and 1,340 W configurations and have response from 5 Hz to 40 kHz.

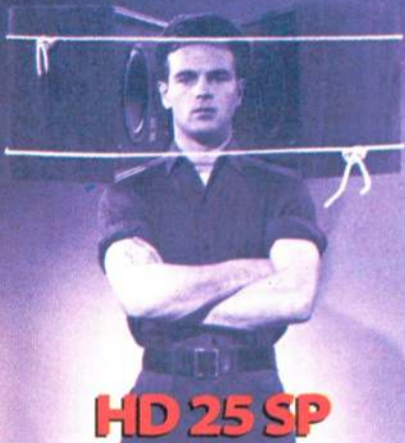
The SRX line is appropriate for live sound and sound reinforcement and can be fitted to station remote vans.

For information, contact C Audio in England at 44-1223-211333 or circle Reader Service 158.

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World Radio History

Production Rocks Inside the Box

Why Can't You Have the Same Fun in the Studio You Once Had in Those Big Cardboard Boxes?

Alan R. Peterson

Recently, a large box arrived here at our office with an oversize loudspeaker product for review in one of sister publications.

For the editors, the product within was of considerable interest. But an even greater curiosity was the remarkably large box it came in.

Several of us noted simultaneously that, if we were all about eight years old again, this would be the perfect-sized box to play "spaceman," "pirate ship" or "castle" in. The kind of box that, 25 years or so earlier, we would willingly beat up half the neighborhood to claim.

Second childhood

One of us recalled balancing a box like this on top of a skateboard, climbing inside and rolling down a hill towards certain doom. Someone used such a box to toboggan down their carpeted stairs at home.

Still another would cut round port-holes on the sides, stick an old, broken radio inside for a "control panel," jam a cardboard tube through the top to make a periscope and take command as skipper of the submarine Nautilus.

We did not anticipate the rush of memories but we didn't care. All we knew was, once we saw that box, we were rather tempted to off-load the speaker and begin customizing the outside of our new clubhouse with magic markers and a pirate flag. To blazes with the neighborhood kids or the recycling center; this box was ours!

The carton was spared our artistic intentions and it was back to business as usual. But it did make an impression on me: Such is the importance of having fun on the job and the need to stick a little play-time somewhere into the day.

The need for such a release is as strong in us now as adults as it was when we were bald-faced boys and girls, especially in a creatively-driven job. Believe me when I tell you, putting an issue of *RW* together is accompanied by the same creative lunacy, tension, deadlines and caffeine as any day in any radio production room, and I have

done time in both.

How strong is this drive? A few years ago in *RW*, I documented our construction of a new on-air studio at WLAD(AM), Danbury, Conn. During construction, every jock working there took time after-hours to sit down in front of the new PR&E console — weeks before it was even wired in — and just noodle with everything as if broadcasting to the entire galaxy.

Imaginary DJ

We would sit there and glide those faders up and down, stretch our arms out where the CD players were going to be, stab at the inactive Delay Dump button and wheel the chair around inside "jock space" to see if indeed everything would be within reach.

I even caught one talent faking an announcer break using a set of calls from the legendary station she longed to work for someday.

"No, I was just checking out the new board, really," I'd be told. But I

knew we were guilty. All of us felt the need to sit down in that incomplete room, stretch our feet out towards imaginary pedals and go "Vroom-vroom-vroom!"

Watch what happens when a new DSP effect box arrives at a station for the production room. Employees who could not care less about doing production suddenly turn into babbling maniacs as soon as the mic is connected to the box.

You know that straight-laced, button-down, no-nonsense manager? The one whose face will crack and shatter like a boiled egg in the event of a smile? Plop the old grouch down in front of a 360 Systems Instant Replay with the factory-loaded effects library, and watch the next hour go by, punctuated by bursts of laughter.

Strangely, these types are drawn to the gunshots, explosions and breaking glass buttons more than any other. I suppose there really is such a thing as a Type-A personality after all.

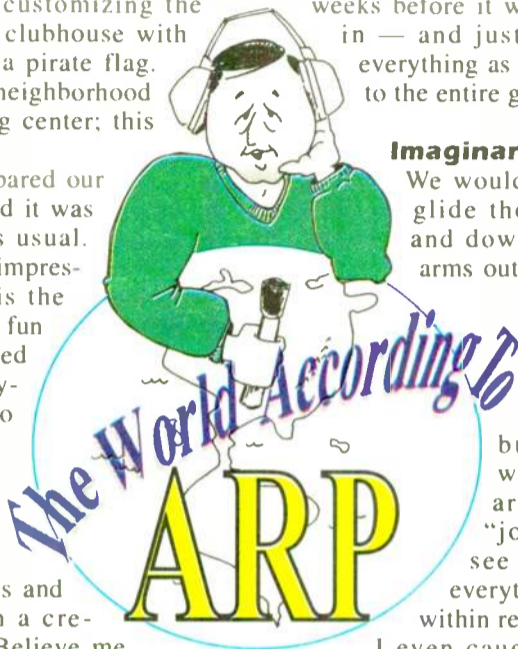
The common denominator here is play, the creative release that makes the day — and often the career — bearable.

The importance of play

In the words of the great philosopher Popeye the Sailor Man, "I ain't no psykoanalyk." But I know the importance of being able to get up and walk away from the job for a moment just to get a little goofy.

That problem you have been turning around in your head all morning

See ARP, page 100 ▶



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Grab a Big Box and Let's Play 'Radio'

► ARP, continued from page 99

suddenly answers itself when you are not thinking about it. A name, a song or a telephone number from half a lifetime ago rises to the top of your consciousness.

And if there were ever a place where "play" should be encouraged, it has to be in the production room. After all, this is the room where all the toys are: The boxes that make men sound like giants, the recorders that turn one woman into a 40-voice chorus, and all

the sound effect CDs a warped mind could ever want.

This is where meaningful play is important, because this room is where the ideas come from. Exploration into those ideas can only be achieved when a little time is devoted during the day to just getting a little silly.

Naturally, timing is everything. Schedule the time for yourself to make some noise without an account executive breathing down your neck waiting for the fourth recut of a spot.

Let me use my own experiences as an example. I once needed to create the effect of a drifty AM radio signal around sunset during winter. Our station was testing out a Yamaha SPX-1000 effect box that was on loan to us, and when I was under the gun, the effect simply would not come.

I wrestled with the SPX and could only get a feeble flange warble out of it. I did what I could, but was unhappy with the end product that eventually went to cart.

But later, once my air shift was over, I went back to the SPX just to make some noise, and there it was. It came without so much as a second's worth of thought. It was as if the box was telling me what to do.

After a few moments of menu-wrestling, I came up with a combina-

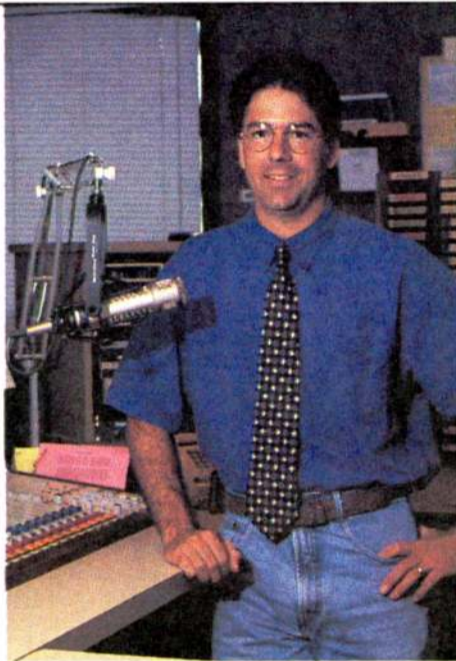
Shortwave Sim: Based on Program #35 "Pan + Pan"

1 PAN TYP	L< >R
1 SPEED	.85 Hz
1 F/R DPT	98 %
1 L/R DPT	100%
1 DLY	0.1 ms
2 PAN TYP	L< >R
2 SPEED	1.00 Hz
2 F/R DPT	100%
2 L/R DPT	100%
2 DLY	0.1 ms
PHASE	+157.5
EQ	D. FLT
CTL TYPE	LFO
FLT TYPE	HPF
F CENTER	1.6 kHz
F DEPTH	4 OCT
Q	HIGH
LFO FREQ	0.2 Hz



Lindy Williams
V.P. Engineering
Lotus Communications
Los Angeles, California

"We've replaced some 'very expensive' condenser microphones with the RE27N/D ...now the GM wants the guest mic replaced, as well as the production studio and the newsroom microphones. You're blowing my engineering budget!"



Steve Lariviere
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WSNE

East Providence, Rhode Island
"We replaced six expensive German condenser microphones in favor of the RE27N/D. What a great sound!"



Marv Collins
Chief Engineer
KFI-KOST-KACE
Los Angeles, California

"The RE27N/D has the fullness of a ribbon with the punch of a shotgun condenser microphone. The pattern is very good, giving good backside rejection of noise. Congratulations on building such a fine microphone."

tion of the SPX-1000's auto-pan feature and sweepable low-pass filter and got exactly what I was hearing all day inside my head. I do not know where it came from, but there it was.

The original cart was pulled and the new effect flown in. World o' difference, let me tell you.

For the benefit of any SPX-1000 users reading this, I named my program "Shortwave Sim," as it closely duplicated the effect of a distant shortwave station drifting in and out. In stereo, it sounded like faraway AM stereo.

I gave the patch freely to WNHU(FM) at the University of New

All of us felt the need to stretch our feet and go 'Vroom-Vroom.'

Haven, Conn., for them to use in their own SPX-1000.

One copy was cheerfully given to the production department at sports-formatted WTEM(AM) here in Washington. It was also published in an audio magazine.

If there is one thing I was taught about taking time to play, it is sharing my toys with others.

So check the above box for a copy of my program for you to plug into your own SPX-1000, with my blessings.

Do not worry about what all the settings mean right now. Just go ahead and try it out. Figure it all out later.

Run several audio sources through it at once, fading each up and down randomly.

Drop in some pink noise from a diagnostic CD to make it sound like background static.

Have fun with this, tell your boss you thought it up and that you definitely deserve a raise to reward such genius.

And whatever else you do with your career, never get too busy that you forget to enjoy yourself a little along the way.

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World Radio History

Headphone Mixing From The Land of OZ (Audio)

Flip Michaels

I attached it to my Walkman, went for a stroll and never before has 'Mr. Roboto' by Styx sounded so good!

Okay, so maybe I am exaggerating a bit about OZ Audio's Q-Mix HM-6 headphone matrix amp.

"Headphone matrix amp," you say? Yes. The Q-Mix allows custom headphone mixes with effects for talent while they monitor their performance.

OZ Audio has been around for more than a decade as a sub-supplier.

manufacturing electronics for other pro audio companies. If this box reminds you of products made by another well-known Pacific Northwest manufacturer, it is not by coincidence. The bigwigs at both companies have been friends and worked together for some time.

Announcers or radio performers plugged into the Q-Mix are able to dial a special effect into their headphone mix to enhance their performance.

This enhancement only happens in the headphone mix; the recorded

See O-MIX, page 103 ▶

Senny's Bright Brother

▶ MIC, continued from page 96

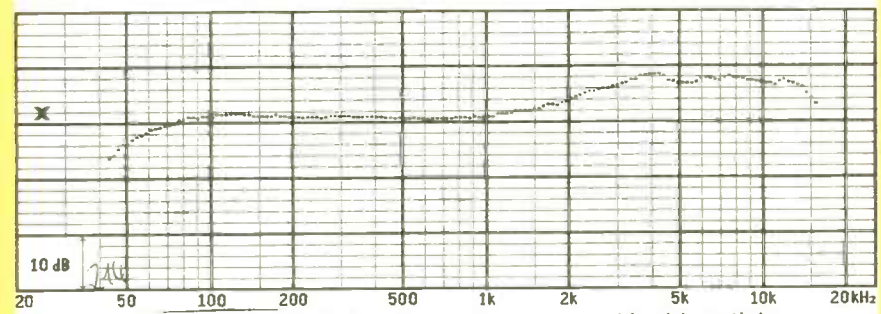
need to be within 2-1/2 inches and reduce the tendency. Using an Air Corp. 500PH mic preamp/processor, I punched in the sibilance control circuitry and made a quick cut of a few dB at 2.5 kHz with a reciprocal boost at 5 kHz. That took care of any sibilance and further opened up the top. Similar approaches with other equalizers should provide the equally acceptable results.

The cardioid pattern of the 421 II is as tight as that of its predecessor. This mic is well-suited for relatively noisy environments, like radio studios, live sound or multi-mic recording.

To get the proximity bump, you

need to be within 2-1/2 inches and pretty much dead center. That makes it a great jock mic, but a poor choice for talk show guests who do not know how to work a mic. So hold on to your MD 421s, for they will probably only go up in value from now on. If you have shied away from the 421 because it was not quite bright enough, it is time to step up to the MD 421 II for another try.

Ty Ford's "Advanced Audio Production Techniques" is available from Focal Press. Call (800) 366-2665. Download his voice demos via the Internet at FTP.Jagunet.com/pub/users/tyford.



A factory sweep of the 421 II mic evaluated in this article.

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Q-Mix Pleases Voice Performers

► Q-MIX, continued from page 102

performance is not affected. This means no more jury-rigging your own temporary version with a box of adapters and duct tape. Just sit down and plug in.

Do you need a "Superman" read that goes dry to tape for later processing? Q-Mix lets the talent hear a desired effect (reverb, for example) in the headset without affecting the mix. This allows the talent to get that Superman "feel" without making decisions for the producer doing the mixdown. His or her own ideas for effects can then be added later on.

If you work in a station replete with unexpected visits from folks like Menudo, former Sen. Bob Packwood or the Dallas Cowboys' defense, Q-Mix allows you to send each (ahem) "talent" their own specially requested particular mix.

Reality check

Q-Mix allows you to create up to six headphone mixes from up to five sources, plus effects. It is equipped with six headphone amps built into the unit, each receiving the main stereo mix.

Next are four mono inputs (A through D) which can be sent to separate effect-chains/toys. Each has a single stereo return back in to one of the six headphone amp outputs. Your console crew gets the reality check while the guests are in Harmonizer heaven.

I especially enjoyed plugging my own Eventide H3000B into it. It To hear the effects I could use on my voice without messing up the master recording was quick, easy and worthwhile. Q-Mix drove my favorite Sony headphones with as much as ... well, would you believe 128 dB in each ear?

In Headsets 101, I remember learning that the medium-impedance variety require a lot of current, and the high-impedance types require a lot of voltage.

OZ Audio did its homework. The Q-Mix works well with any headset, because it delivers both high and medium settings.

But is it for me?

So why the Q-Mix HM-6? The question you should ask yourself is, "Do I really have that many thankless processing tasks?"

If yes, then you will be satisfied. In this digital age of ISDN remotes and custom-designed and -built studios, you will unwrap OZ Audio's toy as another opportunity to fulfill your station's special needs.

KGON(FM) of Portland, Ore., finds it useful for special PA needs at remotes. Chuck Ray, operations manager and chief engineer of WXIS(AM)-WEMB(FM) in Erwin, Tenn., sees the box as "something that has given us a lot of versatility."

As it turns out, Chuck had been creating homemade units like this one for years. "There are so many different applications," he said.

For example, feed a set of in-ear monitor transmitters directly from the six phones outputs or use outputs to drive amplifiers. Voila: stage monitors!

Be it live or in the production studio, you can use any combination of stereo and mono monitors. You are only limited by amp channels and money.



Q-MIX from OZ Audio

A typical remote application might involve mixing two announcer and two guest mics on a field production mixer. The mix feeds an ISDN line, while direct channel outputs feed the Q-Mix. This allows each person a mix of only the sources really needed at the level desired.

The connections are easy, while levels and impedances are compatible with virtually any gear in our medium. Inputs accept either balanced or unbalanced line-level (-10

dBV to +22 dBu) signals with quarter-inch TRS phone jacks.

All connectors have a "Herculean" grip, meaning the end of equipment tows when some client exceeds the headphone cord's reach. Control markings are easy to read in low lighting, knobs are fat-finger tested and the unit has its own built-in power supply.

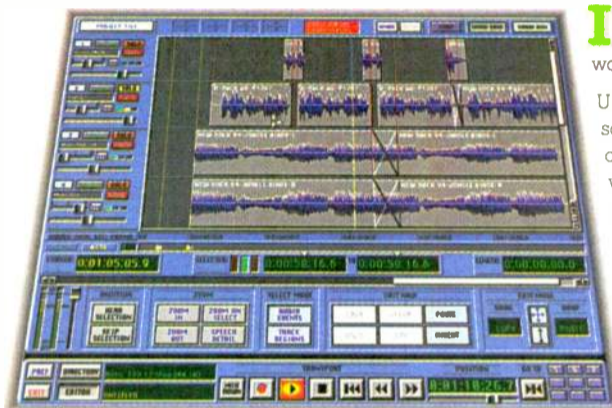
OZ Audio is located in the fun-to-say town of Snohomish, Wash. The Q-Mix HM-6 lists for \$299, or about the price of a few good headphones.



For information, contact OZ Audio at (206) 335-0771 or circle Reader Service 187.

Flip Michaels is production director for WGMS-FM, "Washington's Classical Station." Read this review and other articles by Michaels at members.tripod.com/~FMichaels

No manual required but we'll send you one anyway



If traditional audio production is analogous to walking, a digital audio workstation is the equivalent to flying

Unfortunately, a lot of audio production software can seem like the equivalent of 747 cockpit controls: serious technoid overkill when you're just trying to get from point A to point B.

That's why we developed the Express™ software interface for our Prisma™ workstation hardware. So you can enjoy workstation speed and maneuverability instead of logging frustrating hours just trying to get the thing off the ground

Express is the creative tool for radio

broadcast production with a clean interface so simple that even your program director could learn it. *Everything you need is on a single screen* — cut/copy/paste buttons, snapping/grid controls, faders & pans, a transport that is very familiar, a pull-down sound library list, and the ever popular 10-level undo/redo. And the best part is, it works the way you work — quickly and intuitively. So you don't have to spend endless hours inside a manual deciphering cryptic icons, memorizing multiple keystroke combinations, and struggling with computerese.

Not that we cut out any feature you might need; we just took out all the stuff you hate about digital workstation software. Like nested menus, tricky hardware set-up, and way too many screens piled up on top of each other

But Express isn't just some kind of "dumbed down" product. Lurking underneath this deceptively simple interface lies a tremendous amount of power and capability that allows you to accomplish even the most difficult editing tasks. Powerful tools like time compression/expansion, normalization and one-touch submix.

Prisma systems also work well in groups, with Internet-compatible network audio transfer between systems in different rooms or across the planet. You can even send a spot you've created in Express directly to one of several popular digital on-air delivery systems — all ready to play.

And if you really want to get going fast, we'll build you a complete turnkey Prisma system, so all you need to provide is some desk space and a power outlet.

So don't just sit on the runway reading the manual. Grab the controls and fly. Express for Prisma. Get it done while you're still young.



I've always known my Prisma system was speedy. Then, I got my hands on the new Express software. Its simple interface and intuitive tools make virtually every radio project a snap. It's easy, it's fast — and it makes mounds and mounds of carrot salad. We love it!

Dave Green
Director of Production Services
Paxson Communications, Orlan, Va.



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Here's the Really Fine Print

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If your station is in the practice of recording and/or airing music performed live in the studio by bands or solo performers, you will want to know about minimizing noise.

One of the noisiest sources is the guitar amp. To override its hum and hiss, turn up the electric guitar and turn down the amp. Also turn up electric keyboards to over-

ride the hum picked up by their cables.

Consider recording direct instead of miking the guitar amp. You might be able to bypass a noisy amp by recording off the guitarist's effects boxes, or by recording direct from a guitar-amp simulator.

If you record from the preamp output on the guitar-amp head, you may notice that it sounds noisy and "treble-y." Roll off the highs to get a more natural sound and reduce hiss at the same time. Put a noise gate at the end of a chain of effects.

Try noise gates on keyboards and

noisy guitar amps, too. A noise gate turns down the volume and the noise only when the instrument stops playing.

When working with mics, look at the spec called "Self Noise" or "Equivalent Noise Level." An A-weighted noise spec of 16 dB is excellent (quiet); a spec of 20 dB is very good, and a spec of 25 dB is good.

A-weighted means the noise signal was run through a filter approximating the frequency response of the human ear, mostly a low-frequency rolloff.

With any mic, the closer you place it to the sound source, the better the signal-to-noise ratio. When you mic close, the sound is louder, so you can turn down the mic and its noise.

Of course, you cannot always mic as close as possible because it affects the tone quality and the amount of ambience

picked up. You might simply play louder to override mic noise.

Some condenser mics have a built-in pad or input attenuator. Leave it switched out unless you hear mic distortion.

Cut mixer noise

Even a mixer generates hiss if not set up correctly. Let's look at three ways to reduce mixer hiss: adjust gain staging, bypass stages and mute inactive tracks.

First, adjust gain staging. Set the master faders, submasters (if any) and input faders to design center — this is the shaded area of fader travel about 3/4 to the top.

Assign the input signal to the submaster and master output channels. Play the source, and set the trim control so the output-bus meter peaks at 0. Do the same during mixdown. Put faders at design center, and set up a rough mix with the input trims.

Gain staging applies to signal processors, too. Send the proper level to effects devices.

Next, keep the signal path as short as possible. The less electronics the signal has to go through, the cleaner it will be.

Consider the main amplifier stages in a typical mixer. During recording, the signal must go through a mic preamp, an EQ amp and the group summing amp (active combining network).

To reduce noise, send a signal to each tape track from the earliest possible point in the chain. For example, plug a synthesizer directly into its tape track. That way, you bypass the noise of your mixer. When you use a mic, feed it to a low-noise mic preamp plugged directly into a tape track.

Suppose you want to use the mic preamps in your mixer. When recording one instrument per track, use Direct Out.

Otherwise, the signal there goes through an extra stage of amplification (the summing amp).

During mixdown, the signal goes through the EQ amp, a group summing amp and finally the master summing amp.

Again, keep the signal path as short as possible. For example, if you are mixing your tape tracks to busses 1 and 2 without any submixes, bypass the master summing amp and connect busses 1 and 2 to your mastering recorder.

Do not use the stereo or main outputs, because the signal is noisier there. If you are doing submixes or grouping, however, you must use the main stereo outputs.

Turn it down

Finally, mute inactive tracks. During mixdown, be sure to mute any tracks that have nothing playing at the moment. Every time you double the number of tracks in the mix, noise increases 3 dB, assuming equal level per track.

The fewer tracks you assign to the output busses, the less hum and hiss buildup. Muting cuts noise more than turning down the fader.

When you boost the high-frequency EQ, this makes hiss easier to hear. You might want to simulate highs with an exciter rather than with high-frequency EQ.

Try single-ended noise reduction at the output of the mixer, before feeding the two-track recorder. By following these suggestions, you can expect clean master tapes.

■ ■ ■

Bruce Bartlett is a mic engineer, writer and recording engineer, and the author of "Practical Recording Techniques," published by Howard Sams. Jenny Bartlett is a technical writer. Reach Bruce at (219) 294-8388.

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Crown Comtech 200 studio amp, 125 W per chnl, 4/8 ohms, 5 yrs old, little use, \$400 +shpg. B Rice, WBNI, 3204 Clairmont Ct, Ft Wayne IN 46898. 219-452-1189.

Ham Radio linear kilowatt bldg parts, roller coils, air-wound capacitors, tubes, sockets, meters, dial counters, chassis, panels, cabinets & pwr supply parts. F Yonker, Penn Satae Univ, 1229 Inverary Pl, State College PA 16801. 314-867-1400.

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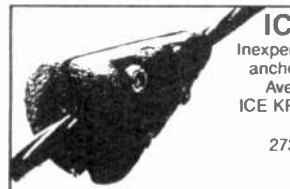
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Jampro JSCP-6 6 bay FM antenna on 101.5 MHz, \$700. J Stortz, WKES, POB 8888, St Petersburg FL 33738. 813-391-9994.



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Pultec, all models, B Elliott, Showplace Studios, 347 South Salem St, Dover NJ 07801. 201-328-4400.

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Shure SM 33 ribbon mic still in original box w/cable & warranty card, \$250. J Borden, Handbasket Prod, 2909 So Logan, Milwaukee WI 53207. 414-482-8954.

Countryman TVH tie-clip mic, \$165; AKG D-140 dynamic cardioid mics (3), \$115 ea; Schoeps Collete cable KC5L w/Limo connector & adaptor, like new cond, \$335. R Streicher, Pacific Audio-Visual Enter, 545 Cloverleaf Way, Monrovia CA 91016. 818-359-8012.

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RCA 77DX, Letterman style, works, great condition, \$1000. Dave Stout, 314-434-3912.

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RCA 77 & 44, Neuman, Sennheiser, EV, Altec, Coles, T Coffman, POB 17203, San Diego CA 92177, 619-571-5031.

Sennheiser ME80 shotgun mic w/power supply module, K3U, P Boone, Capitol Radio Network, POB 12800, Raleigh NC 27605, 919-890-6045.

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Omnicon VLR-8 call logging recorder, \$50. E Wilk, 1112 N Grove Ave, Oak Park IL 60302, 708-524-8588.

RCA 3-1/8" motorized coax switch, \$1000. M Seaver, KHQA, 510 Maine, Quincy IL 62306, 217-222-6200.

ADC Pro-Patch 1/4" (4) factory wired to Gepco snakes, never used, \$450 ea; ADC Pro-Patch TT Bantam patch bay 96 pt pre-wired to short cables, great cond, \$200; used Switchcraft style 1/4" patch bay, \$25. D Bailey, Rock Shoppe Prod, 10027 Church Rd, Dallas TX 75238, 214-343-0879.

Johnson Cardwell B/W roller inductors, counter dials, vacuum/air capacitors, Barker-Williamson 5 band output coils, & more. F Yonker, Penn State Univ, 1229 Inverary Pl, State College PA 16801, 314-867-1400.

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Magna-Tech 92B varispeed sync PB & extra tube, CRC 2Bpu, \$2000. G Morell, United Recdg, 681 Fifth Ave, NNYN 10022, 212-751-0859.

Western Union 18" round Naval Observatory clock, pendulum driven, battery spring rewound wall clock, E Wilk, 1112 N Grove Ave, Oak Park IL 60302, 708-524-8588.

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Tascam 22-2, rox, rack ears, manual, etc, excel cond, \$450. M Scharrow, Mark Scharrow Recdg, 307 4th Ave E, Lemmon SD 57638, 605-374-3424.

Tascam 234 4 trk dbx prof, like new, several avail, \$300/BO; Revox A77 bdct prof grade, BO. P Wahl WWIB, Hwy 53, Chippewa Falls WI 54729, 715-723-1037.

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Otari MX70's 16 trk 1", mint, 150 hrs w/video layback system, \$6950; Tascam ATR60-2 in stand, \$1200; Tascam ATR60-8, \$2750; Tascam 58 8 trk, \$1950; Tascam 38 8 trk, \$1650; Otari 5050-8 Mk III, \$2200; Ampex 440C-8 1", \$2900; Ampex 1200 PUTC cards, \$400 ea; nakamichi 550 portable cassette, \$250; Custom locator for ANY deck, \$495. W Gunn, Box 2902, Palm Springs CA 92262, 619-320-0728.

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Otari 4 trk; Otari 5050 2 trk, R Wold, WMXR, Jct Rts 4 & 12, Taftsville VT 05073, 802-457-9494.

Technic RSM-65, 85, 95 rack mount cassette rcdrs, RSM-95 w/RM kit, also known as M-65, M-85 & M-95, BO. J Diamond, Blue Diamond Co, 290 Chubbic Rd, Canonsburg PA 15317, 412-746-2540.

Ampex ATR100 taperecorders for parts, circuit cards, heads, motors, machine parts, or electronic parts. Call 818-907-5161.

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Fostex PD-4 portable digital audio recorder, time code generated, mint, new \$6500, \$4000/BO, 301-762-6999.

Burk TC-8, no IP-8 w/speech synthesizer, \$1200; Moseley MRC-1600 remote control, 4 wire w/2 studio units, working, \$1400. A Reis, WJOL, 601 Walnut St, Joliet IL 60432, 815-726-4761.

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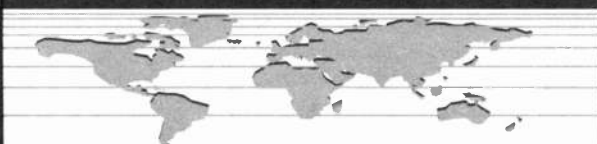
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ITC/Scotchcart oldies library on 732 carts, \$1500. D Bailey, Rock Shoppe Prod, 10027 Church Rd, Dallas TX 75238. 214-343-0879.

Scully 250/255 series recorder/reproducer, \$250; Scully 250/255 series recorder/reproducer, \$250. M Taylor, KNEO, 10827 Hwy 86 East, Neosho MO 64850. 417-451-5636.

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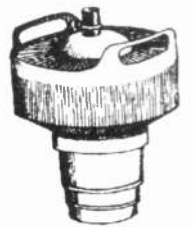
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Gates Vanguard 1 kW-1/2kW single tube on 1590, \$1000. C Maley, 514 N 17th, Clarinda IA 51632. 712-542-4858.

RCA BTF-20E1 FM, 20 kW, mid 70's, manual, last known freq 94.9, you ship, \$16,500. A Crain, WYLT, POB 1404, Collierville TN 38027. 901-854-7148.

CCA FM-10000D 10 kW w/AEL FM-150E exciter tuned to 99.5 MHz, vgc. \$6000. B Larson, WUSN, 875 N Michigan, Chicago IL 60611. 312-649-0099.

Gates BC-250GY on 1340, as is. \$500 or checked out, \$1000; HP dist meter HP330B, \$150. G Kenny, KCL-TV, POB 932, Neosho MO 64850. 417-451-1440.

Harris 3.5 kW FM, MX 15 exciter, excel cond, \$15,000. M Wodlinger, Wodlinger Intl LC, 3355 Tamiami Trail N, Naples FL 34103. 941-262-1118.

Marti SCG-8H subcarrier gen, excel cond. several avail, BO. P Wahl, WWIB, Hwy 53, Chippewa Falls WI 54729. 715-723-1037.

Want To Buy

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Sales Manager. sell E-Z Format. KSIR-FM, Greeley Colorado. Bob. 970-353-6522.

Chief Engineer: Four stations in large western market. Strong RF, studio, computer, organizational & people skills. EOE. Resume & requirements to: Ernie Hopseker, New Century Media, 190 Queen Anne Ave #100, Seattle WA 98109 or 206-286-2376.

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CE seeks position. exper w/computers, xmtrs, automations, DCS, UDS, digital studios, great references. Robert King. 702-876-5151.

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Transmitter Engineer w/design, troubleshooting & installation exper in high power UHF, HF, MF and LF seeks position, will travel & relocate. George. 303-254-4500.

Florida AT exper pro seeks new challenge anywhere in Florida, Georgia, Gulf area, Southeast1 hac/ac/Top 40/Classics, oldies, AOR. Jay Shannon, 561-770-4749.

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Technics SP-10 quartz control w/tone arm, cartridge (2), BO. P Wahl, WWIB, Hwy 53, Chippewa Falls WI 54729. 715-723-1037.

Technics SP-15, \$250; Technics ST-15 w/bad pwr supply, BO; AI-Line TT bases for ST-15's, \$200; ATI phono preamp, new cond (2), \$150 ea; Audiometric phono preamp, works well, \$100. A Reis, WJOL, 601 Walnut St, Joliet IL 60432. 815-726-4761.

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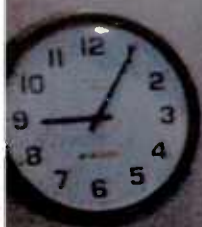
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